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ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

VOL. XIX. NO. 1.

JAN. 1. 1891.

PEACE ON EARTH
★
GOOD-WILL TOWARD MEN



CLEANING IN BEE CULTURE

DEVOTED
TO
THE
BEE

& HOME INTERESTS.

MEDINA, OHIO

BY

AL ROOT.



TERMS, ONE DOLLAR PER YEAR.



SW Conrad

ADVERTISEMENTS.

We require that every advertiser satisfy us of responsibility and intention to do all that he agrees, and that his goods are really worth the price asked for them. Patent-medicine advertisements, and others of a like nature, can not be inserted at any price.

Rates for Advertisements.

All advertisements will be inserted at the rate of 20 cents per line, Nonpareil space, each insertion; 12 lines of Nonpareil space make 1 inch. Discounts will be made as follows:

- On 10 lines and upward, 3 insertions, 5 per cent; 6 insertions, 10 per cent; 9 insertions, 15 per cent; 12 insertions or more, 20 per cent; 24 insertions or more, 25 per cent.
- On 48 lines (½ column) and upward, 1 insertion, 5 per cent; 3 insertions, 10 per cent; 6 insertions, 15 per cent; 9 insertions, 20 per cent; 12 insertions, or more, 25 per cent; 24 insertions or more, 33¼ per cent.
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No additional discount for electrotype advertisements.

A. I. Root.

CLUBBING LIST.

We will send GLEANINGS—		
With the American Bee-Journal, W'y	(\$1.00)	\$1.75
With the Canadian Bee Journal, W'y	(75)	1.65
With the Bee Hive,	(30)	1.20
With the Bee-Keepers' Review,	(1.00)	1.75
With the British Bee-Journal,	(1.50)	2.40
With American Apiculturist,	(75)	1.70
With American Bee-Keeper,	(50)	1.40
With Bee-Keepers' Advance and Poul-		
tryman's Journal,	(50)	1.45
With all of the above journals,		6.20

With American Agriculturist,	(\$1.50)	2.25
With American Garden,	(2.00)	2.60
With Prairie Farmer,	(1.50)	2.35
With Rural New-Yorker,	(2.00)	2.90
With Farm Journal,	(50)	1.20
With Scientific American,	(3.00)	3.75
With Ohio Farmer,	(1.00)	1.90
With Popular Gardening,	(1.00)	1.85
With U. S. Official Postal Guide,	(1.50)	2.25
With Sunday-School Times, weekly,	(1.50)	1.75
With Drainage and Farm Journal,	(1.00)	1.75
With Illustrated Home Journal,	(50)	1.35
With Orchard and Garden,	(50)	1.40

[Above Rates include all Postage in U. S. and Canada.]



30 Quarto pages—50 cents a year.

A **PIRE** Elegant Monthly for the **FAMILY** and **FIRESIDE**. Printed in the highest style of the art, and embellished with magnificent Engravings. Sample FREE. Agents Wanted.

THOMAS G. NEWMAN AND SON,
PUBLISHERS

246 East Madison St., - CHICAGO, ILL.

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per annum, when given once a month, or \$4.00 per year if given in every issue.

Untested Queens

FOR \$1.00 FROM JULY 1ST TILL NOV. 1ST.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for \$1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

- *A. I. Root, Medina, Ohio.
- *H. H. Brown, Light Street, Col. Co., Pa. 7tfd90
- *Paul L. Viallon, Bayou Goula, La. 7tfd90
- *S. F. Newman, Norwalk, Huron Co., O. 7tfd90
- C. C. Vaughn, Columbia, Tenn. 9tfd90
- J. M. Jenkins, Wetumpka, Ala. 9tfd90
- *Oliver Hoover & Co., Snyderstown, Northumberland Co., Pa. 17tfd90

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

- A. I. Root, Medina, Ohio.
- P. L. Viallon, Bayou Goula, La. 7tfd90
- C. W. Costellow, Waterboro, York Co., Me. 7tfd90
- R. B. Leahy, Higginsville, Laf. Co., Mo. 9tfd90
- J. M. Jenkins, Wetumpka, Ala. 9tfd90
- W. T. Falconer Mfg. Co., Jamestown, N. Y. 7tfd

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says—“We out with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 money-boxes, and a great deal of other work. This winter we have double the amount of bee-hives, etc., to make, and we expect to do it all with this Saw. It will do all you say it will.”

Catalogue and Price List Free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. Root.

23tfd

Cash for Beeswax!

Will pay 25c per lb. cash, or 28c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 31c per lb., or 35c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. Root, Medina, Ohio.



Undoubtedly the Largest Plant in the West,

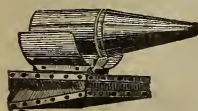
Built exclusively for the manufacture of Apian Supplies. One and One-Half Acres Floor Space. We sell as Cheap as the Cheapest, and our goods are as Good as the Best. Parties will do well to write us for estimates on large orders. We will send you our catalogue for your name on a postal card. Address **LEAHY MFG. CO.**

Higginsville, Mo.

In responding to this advertisement mention GLEANINGS.

15 STRONG Colonies of bees (Italian, Cyprian, and Hybrids) for sale very cheap.
REV. R. W. LEWIS, Waxahachie, Ellis Co., Tex.
Offered only 30 days.

BEST ON EARTH



ELEVEN YEARS
WITHOUT A
PARALLEL, AND
THE STAND-
ARD IN EVERY
CIVILIZED
COUNTRY.

Bingham & Hetherington
Patent Uncapping-Knife,
Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3 1/4 in.,	postpaid	...\$2.00
Conqueror "	3 "	"	... 1.75
Large "	2 1/2 "	"	... 1.50
Extra (wide shield)	2 "	"	... 1.25
Plain (narrow)	2 "	"	... 1.00
Little Wonder,	1 1/4 "	"65
Uncapping Knife..... 1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb BINGHAM & HETHERINGTON, Abonia, Mich.

In responding to this advertisement mention GLEANINGS.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, \$3.50 per 1000; 2000 to 5000, \$3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at \$2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
Successors to B. J. Miller & Co.,
Nappanee, Ind.

16-tfdb

MUSICAL INSTRUMENTS MURRAY & HEISS CLEVELAND OHIO. SEND FOR CATALOGUE.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Neb.; G. L. Tinker, New Philadelphia, O.; E. Kretschmer, Red Oak, Ia.; P. L. Viallon, Bayou Goula, La.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; E. L. Goold & Co., Brantford, Ont., Can.; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hansen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis.; Walter S. Pouder, Indianapolis, Ind.; E. T. Abbott, St. Joseph, Mo.; I. D. Lewis & Son, Hiawatha, Kan., and numerous other dealers.

LANGSTROTH on the HONEY-BEE, REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to
4tfdb

CHAS. DADANT & SON,
HAMILTON, HANCOCK CO., ILLINOIS.

In responding to this advertisement mention GLEANINGS.

MUTH'S
HONEY - EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES, HONEY-
SECTIONS, &c., &c.

PERFECTION COLD-BLOOD SMOKERS.

Apply to CHAS. F. MUTH & SON,
Cincinnati, Ohio.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." 2tfdb Mention Gleanings. 1tfdb

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE, KEITH & SCHMIDT CO.,
21-12db New London, Wis.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.

CHAS. DADANT & SON,
Hamilton, Hancock Co., Illinois.

SECTIONS.

\$2.50 to \$3.50 per M. Bee-Hives and Fixtures cheap. NOVELTY CO.,
6tfdb Rock Falls, Illinois.

Please mention this paper.

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Wants or Exchange Department.

WANTED.—To exchange apiary of 150 colonies of bees. Will take any kind of farm stock, goods or groceries. **ANTHONY OPP, Helena, Ark.**

WANTED.—To correspond with parties having potatoes, onions, apples, and honey for sale. Prompt attention given to correspondence. Consignments solicited. Prompt returns made. **EARLE CLICKINGER, 121 So. 4th St., Columbus, O.**

WANTED.—To exchange Perfect Hatcher, 176 eggs, cost \$75.00; and brooder, 300 chicks, cost \$38.00; been used at fairs a little, for Italian or hybrid bees. **ELIZABETH DIMICK, Burns, Steuben Co., N. Y.**

WANTED.—To exchange a new foot-power saw for honey. Send for a descriptive circular. **W. S. WRIGHT, Battle Creek, Mich.**

WANTED.—To exchange 25 Root's new Dovetailed hives, all complete for comb honey, 7 drone and queen traps, 2000 $4\frac{1}{2} \times 4\frac{1}{2}$ sections, 1 atomizer, 1 fine Mexican parrot, 1 2-year-old Florida mockingbird, 1 bullfinch, 1 pair goldfinches, 3 copies "Heroes of the Dark Continent" (new books), and 1 fine double-barreled shotgun, Remington pattern, for ferrets, incubator, peach, plum, or cherry trees. **A. B. BURKHOLDER, Butler, O.**

WANTED.—To exchange my home apiary near Letts, Ia. 180 colonies, everything complete and in readiness for coming season. Location first-class—no apiary nearer than 4 miles—for clear city or country property, merchandise, or offers. Address until Feb. 15, **H. L. GRAHAM, San Diego, Cal.**

WANTED.—Second-hand band saw, for 9-in. Quaker City Grinding Mill, nearly new. **F. A. MURPHY, Delhi, Del. Co., N. Y.**

WANTED.—Two dozen White P. Rock pullets; state price. **EDGAR EASTERDAY, Nokomis, Ill.**

WANTED.—To exchange one Gauge lathe, and 1 lathe for turning handles; want sawmill (portable) or engines. **W. S. AMMON, Reading, Pa.**

WANTED.—Four men that can give good reference to take entire charge of 15 colonies of bees each. Will have to run bachelors' camp, and keep sober. Address **WHEELER & HUNT, Redlands, Cal.**

WANTED.—A man 28 to 30 years old, who is used to working with bees, one who understands running for comb or extracted honey; also understands queen-raising; a man who knows the business. An American and church-member preferred. **C. S. LEWIS, Temecula, San Diego Co., Cal.**

WANTED.—Party who has printing outfit to do the printing for a Fruit and Bee Journal (pages 6x9 in.), and take one-half the income from same. Pays well. Have not time to attend to it. Choice fruit trees and plants to exchange. **J. B. ALEXANDER & Co. (Golden Rule Nursery), Hartford City, Ind.**

WANTED.—To exchange a Barnes foot-power saw for something useful on a farm; or offers. **ALFRED POWERS, Brittain, Summit Co., Ohio.**

WANTED.—To sell one of Root's V-groove section machines and cutter-head, all in good working order. **MARCUS HOLTZ, Tiffin, Ohio.**

IMPORTED QUEENS.

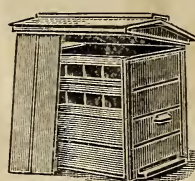
In May and June, each.....\$2.00
In July and August, each.....1.80
In September and October, each.....1.60
Money must be sent in advance. Safe arrival guaranteed. Queens that die en route, if returned in the letter, will be replaced by mail, postpaid. No order for less than 8 queens by express will be accepted.

**CHAS. BIANCONINI,
Bologna, Italy.**

In responding to this advertisement, mention GLEANINGS.

EGGS! Brown Leghorn, White Leghorn, \$1.25. Black Minorca, Plymouth Rock, Pekin Duck, \$1.50. Light Brahma, Langshan, Game, \$2 per 13 eggs. Strictly pure-bred. Ship safely anywhere. Illustrated circular free. **GEER BROS., St. Marys, Mo.**

OUR 8-FRAME CHAFF HIVE



is the lightest, cheapest, and most practical chaff hive on the market. Perfectly interchangeable with the Dovetailed hive. We want you to see this hive before you order your season's supply, and will send you a sample for \$1.75, made and nicely painted, with a tin roof, if ordered now while we are not busy.

We are also prepared to rear the very finest CARNIOLAN and GOLDEN ITALIAN QUEENS. Let us book your order now and remit when the queens are ready. Send for price list.

ROE & KIRKPATRICK, Union City, Ind.
In responding to this advertisement mention GLEANINGS.

1891. 12th Year.

HEADQUARTERS IN THE SOUTH

For the manufacture and sale of
BEE-HIVES AND BEE-KEEPERS' SUPPLIES,
Early Nuclei, and Italian Queens.

Send for Price List.

P. L. VIALLO, N,

Bayou Goula, La.

In responding to this advertisement mention GLEANINGS.

1891. NEW BEE-HIVE FACTORY. 1891.

Root's Dovetailed Hive a specialty. Price List free. Save your freight, and order early of

**GEO. W. COOK,
Spring Hill, Johnson Co., Kan.**

FREE. FREE. FREE.

One full colony of the **Five-Banded Golden Italian Bees**, with breeding queen; four 3-frame nuclei, with breeding queens; four 3-frame nuclei, with select tested queens; and three 3-frame nuclei, with tested queens;

TO BE GIVEN AWAY

to the persons growing the largest yields from one and two lbs. of my new Seedling Potatoes in 1891. **Highly recommended by Mich. Agricultural College.** Send stamp for catalogue. Ready Feb. 15.

**JACOB T. TIMPE,
Grand Ledge, Mich.**

In responding to this advertisement mention GLEANINGS.

Comb-Foundation Mills.

Made by

**W. C. PELHAM,
Mayville, Ky.**

NOW SEE HERE!

Have your orders booked now, and pay when queens arrive, for the **FIVE-BANDED GOLDEN** Italian queens that are becoming so very popular because they deserve it. Our bees took first premium at the Illinois State Fair in 1890. The gentlest, best workers, and most beautiful bees in existence.

Warranted, \$1.25; tested, \$2.00; virgins, 40c, before June 1. Price list free. Barred Plymouth Rock eggs for sale.

S. F. & L. TIEGO,
Swedona, Mercer Co., Ill.

☞ responding to this advertisement mention GLEANINGS.

IMPORTED QUEENS.

Will those persons who wish to procure one or more Italian Queens, direct from Italy, notify us within a few weeks, before we order? Write for terms.

F. H. & K. H. DEWEY,
Pure Italian Bees and Queens,
Westfield, Mass.

55 Mechanic St.

FOUNDATION & SECTIONS are my specialties. No. 1 V-groove Sections at \$3.00 per 100. Special Prices to dealers. Send for free price list of every thing needed in the apiary.

M. H. HUNT,
Bell Branch, Mich.

NEW FACTORY. LOW PRICES.

Eight-frame Chaff Hives. Closed-end, or Hoffman Frames, a specialty. One and Four piece Sections, etc. Send for circular.

WM. BURDSAL,
Lebanon, Ohio.

1890 ITALIAN QUEENS FOR BUSINESS.
18tfdb W. H. LAWS, Lavaca, Ark.

Strawberry Plants (Sharpless).

10c per 10; 50c per 100; \$4.00 per 1000.

BRICE WILSON, Glenwood P. O., Or.

FOR SALE.

One Barnes Foot-power Saw, two Fdn. Mills, ten stands Bees in Simplicity hives, in good condition.

R. HOLMES, Ft. Wayne, Ind.

CHICAGO

BEE-KEEPERS' SUPPLY CO.

OFFICES:

CHICAGO, ILL., and TOPEKA, KAN.

Manufacturers of and dealers in bee-keepers' supplies. For prices of bee-hives, sections, shipping-crates, frames, foundation, smokers, etc., write for circular and special prices before placing your order.

WANTED FOR CASH.

We wish to purchase 100 to 200 strong Colonies of Bees—Italian and hybrid (Italian bees preferred), in modified Simplicity or Dovetailed hives. Bees must be warranted free from disease, and safe delivery by railroad guaranteed. Freight paid by us. Correspondence solicited, naming kind of bees, number of colonies, and lowest price per colony. 1d

C. S. YOUNG, J. S. HARTZELL,
Confluence, Pa. Addison, Pa.

WANTED—A band to take care of my bees, who is not afraid to work, and that gets up in the morning. **GEO. M. KELLOGG, Pleasant Hill, Cass Co., Mo.**

FOR SALE—500 lbs. choice extracted honey, at 10c here, pkg. included. **W. H. S. GROUT,**
Kennedy, Chautauqua Co., N. Y.

ALSIKE AND WHITE CLOVER SEED ADVANCED

The price on alsike is ruling so firm that it brings, in a large wholesale way, more than our price quoted in catalogue recently mailed to our readers, and we are therefore obliged to withdraw that price, and quote the following, which will apply till further notice to alsike, alfalfa, and white Dutch clovers: 20 cts. per lb.; \$2.40 per peck; \$4.60 per ½ bushel; \$9.00 per bushel, bag included. By mail, 9 cts. per lb. extra.

PREMIUM PICTURES.

We still have in stock quite a number of those handsome pictures, "Christ Before Pilate," described and illustrated in last year's premium list, which we will furnish on the same terms: namely, 50 cents each, postpaid, or given free for one new subscription to GLEANINGS, with your own renewal.

Job Lot of Wire Netting.

CUT PIECES AT A LOWER PRICE THAN FULL ROLLS.

Having bought from the factory, at our own price, five or six hundred remnants, as listed below, we are able to give you the choice of a great variety of pieces at the price of a full roll or lower. Full rolls of netting are 150 ft. long, and when they are cut we have to charge nearly double the full-roll rate, because it is so much trouble to unroll, measure, and cut, and run the risk of having a lot of remnants on hand. No doubt it is in this way that the following remnants have accumulated. It costs a good deal to get all this in shape so we can easily pick out from the lot the piece you want. But to move it off quickly, we put the price down so you can all have a chance at it. Remember, first come, first served. In ordering, therefore, name a second or third choice, or say that we may send the nearest we can if the piece selected is gone. On 5 pieces deduct 5 per cent, on 10 pieces 10 per cent. These remnants are shipped only from here. If any of you want to secure some, and don't want them shipped till later, when you will order something else, so as to save freight, pick out the pieces you want, send remittance with the order, with request to lay by till called for, and we will mark them as belonging to you. We prefer to ship them right out, however.

LIST OF POULTRY-NETTING REMNANTS.

Width in Ins.	Size of Mesh.	No. of Wire.	Cts. pr Sq. Ft.	Length of each piece. Multiply by the width in feet to get the number of square feet in each piece. Then multiply by the price per foot for the price per piece.
12	2	20	20	20; 18 in., 50; 72 in., 95, 27.
36	2	20	20	144, 66, 60, 54.
48	2	20	20	70, 59, 55, 49, 47, 43, 25, 25, 6; 60 in., 47, 42, 32, 24.
18	2	19	19	9
36	2	19	19	58, 45, 43, 38, 23, 19.
48	2	19	19	50.
60	2	19	19	48, 44, 42, 38, 32, 28, 11.
72	2	19	19	124, 130, 120, 108, 103, 103, 100, 94, 88, 81, 73, 72, 68, 67, 60, 50, 48, 26, 25, 24, 20, 19.
24	2	18	1	23, 15; 12 in., 107, 43.
36	2	18	1	144, 122, 50, 43, 35, 17; 30 inches wide, 63, 25.
48	2	18	1	105, 100, 44, 39, 29, 23; 42 inches wide, 60.
72	2	18	1	61, 53, 48, 47, 37, 33, 22, 22; 60 in. wide, 67, 20.
36	2	17	1	42, 23, 15; 24 in. wide, 77.
48	2	17	1	78, 53, 32; 60 in. wide, 25.
12	2	16	1	78, 59, 11; 18 in. wide, 72, 72, 40; 24 in. wide, 94, 88.
36	2	16	1	36, 34, 32, 23, 14; 30 in. wide, 46, 44, 24.
72	2	16	1	60, 58, 56; 48 in. wide, 70, 48, 46, 40, 36, 19; 60 in., 62.
18	2	15	2	87, 61, 30; 12 in. wide, 100.
36	2	15	2	120, 100, 90, 69, 52, 33, 33, 12.
30	2	15	2	127, 6; 60 in. wide, 21, 20.
36	2	15	2	17, 16, 13, 7, 7, 6, 5.
42	2	15	2	125, 121, 35, 26, 23, 20, 8; 72 in. wide, 36, 33, 9.
48	2	15	2	72, 49, 48, 45, 38, 37, 30, 26, 22, 14.
36	2	14	3	49, 42 in., 71.
24	1 1/2	20	1	39; 18 in. wide, 14; 30 in., 14.
42	1 1/2	19	1	85, 59.
30	1 1/2	19	1	33, 33, 30; 36 in. wide, 47, 47, 45, 30.
48	1 1/2	19	1	56; 72 in., 64, 63, 10.
18	1 1/2	18	1	40, 30 in., 110.
48	1 1/2	18	1	60 in., 63, 34, 19; 54 in., 12.
30	1 1/2	16	2	79; 36 in., 14, 7; 42 in., 34; 48 in., 92.
36	1 1/2	20	1	22.
36	1 1/2	19	1	48, 12, 10; 24 in., 86, 42; 30 in., 75; 48 in., 78.
36	1 1/2	18	2	15, 11, 10; 30 in., 6; 42 in., 80; 48 in., 22; 72 in., 8.
48	1 1/2	20	1 1/2	53; 72 in., 51; 30 in., 96; 9 in., 40.
24	1	19	2	26; 9 in., 24; 42 in., 50, 34; 48 in., 100, 40, 25; 60 in., 26; 18 in., 82, 50.
32	1	18	2 1/2	85, 32; 9 in., 32; 10 in., 20; 24 in., 23; 30 in., 69, 51.
36	1	18	2 1/2	37; 48 in., 30; 60 in., 59.
9	3/4	20	2 1/2	33, 7; 36 in., 75, 55.
9	3/4	19	3	32; 128.
24	3	16	1	46, 19; 36 in., 86, 42 in., 14.
36	3	15	1 1/2	63; 48 in., 60.
24	3	14	1 1/2	150, 18 1/2; 48 in., 45; 72 in., 100, 70.
14	4	14	3	166, 52, 35, 23.
22	4	14	4	107, 68, 35, 17, 15, 10.
30	4	14	4	52, 47, 36, 33, 30, 29, 19, 13, 9.
34	4	14	4	43, 37, 34, 25, 24, 23, 18.
42	4	14	5	144, 117, 68, 62, 62, 60, 23, 22, 22, 15, 12, 12, 12, 8, 6.
46	4	14	5 1/2	83, 50, 44, 11, 5.
18	5	13	2	68 ft., 36 in., 200 ft. at 4c; 45 in., 247 ft. at 5c.

Four and eight inch fencing. Price in fourth column is the price per foot in length.

A. I. ROOT, Medina, O.

HONEY COLUMN.

CITY MARKETS.

ALBANY.—Honey.—We have received up to date 2043 cases of comb honey and 220 of extracted. The demand for both comb and extracted is brisk at present, but may fall off some after the holidays. Our stock is well reduced; are entirely out of 1½ lb. buckwheat. We quote clover 16@18; mixed, 14@15; buckwheat, 12@13. Extracted, light, 9@10; dark, 7@8.
CHAS. McCULLOCH & Co.,
339 Broadway, Albany, N. Y.

Dec. 20.

NEW YORK.—Honey.—Our market has been very quiet for the past six weeks, the demand for comb honey has almost ceased, and prices have naturally declined. We quote: Fancy white 1-lb. sections, 15@16; 2 lbs., 13@14; off-grades, 1 lb., 13@14; 2 lbs., 12; buckwheat, 1 lb., 11@12; 2 lbs., 10. Extracted, white clover and basswood, 8½@9. Buckwheat, 6½@7; California, 6¼@7¼; Southern, 65@75c per gal. *Beeswax*, 25@27.
HILDRETH BROS. & SEGELKEN,
28 & 29 West Broadway, N. Y.

Dec. 24.

SAN FRANCISCO.—Honey.—Honey remains very firm, particularly white extracted, which is scarce, with a good demand for the East, as well as for Europe. Comb honey is also for sale only in limited quantities, and we quote 14@15c for 1-lb. frame, and 11@13 for 2 lb. sections. *Beeswax* is very scarce, and we quote from 23@25.

SCHACHT, LEMCKE & STEINER,
San Francisco, Cal.

Dec. 12.

ST. LOUIS.—Honey.—Demand continues good for comb and extracted. The former is scarce. We quote white-clover comb, 19; dark do., 15@16. Extracted, from 5½@6. *Beeswax*, prime, 25c.
D. G. TUTT GR. CO.,
St. Louis, Mo.

Dec. 19.

CINCINNATI.—Honey.—Demand is good for all kinds of honey with a fair supply of all but Southern honey. Choice comb honey brings 18@20c in the jobbing way. Extracted honey 6@8c on arrival. *Beeswax*.—There is a good demand at 24@26 for good to choice yellow on arrival.
CHAS. F. MUTH & SON,
Cincinnati, O.

Dec. 27.

KANSAS CITY.—Honey.—Comb or extracted not selling as fast as we should like to see it. Market quiet. We quote white 1-lb. comb at 16@18; dark, 12@13; white, 2 lbs., 14@15; dark, 11@12. Extracted, 6@7. *Beeswax*, 25.
CLEMONS, MASON & CO.,
Kansas City, Mo.

Dec. 26.

COLUMBUS.—Honey.—Honey selling readily in the comb at 19@20c for choice stock. Not much sale for extracted, hard to dispose of what few consignments on hand.
EARLE CLICKENGER,
Columbus, O.

Dec. 23.

BOSTON.—Honey.—Very little honey on the market; selling slowly. Best 1-lb. comb selling at 19@20; fair to good, 18@19. No 2 lb. in stock. No *beeswax*. Extracted, 8@9.
BLAKE & RIPLEY,
Boston, Mass.

Dec. 26.

DETROIT.—Honey.—Comb honey is selling steadily at 15@17c. Extracted, 7@8. *Beeswax*, 26@27.
Bell Branch, Mich., Dec. 19.
M. H. HUNT.

WANTED.—Southern honey. Will pay 5½c cash on arrival for good Southern honey.

22-23-24-1-d

CHAS. F. MUTH & SON,
Cincinnati, O.

WANTED.—One or two thousand pounds of nice comb honey. Write, giving amount on hand and price wanted. A. D. ELLINGWOOD, Berlin Falls, N. H.
17fdb

FOR SALE.—Choice honey in sections, cans, and C. pails. Send for price list to OLIVER FOSTER, 12-tfdb. Mt. Vernon, Ia.

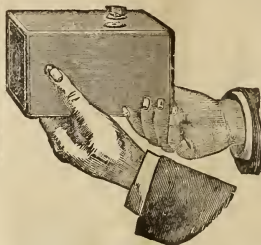
FOR SALE.—Extracted clover honey, in cans or by the barrel. Address E. A. SHELDON, Independence, Buchanan Co., Iowa.

FOR SALE.—Seven cases (two in case) square 60-lb. cans of white-clover honey, candied, that I want 10c for, delivered at depot.
M. B. ROBINSON,
Napton, Saline Co., Mo.

FOR SALE.—3000 lbs. of extracted white-clover honey, in tin cans, at 10c., f. o. b.
LEWIS HAINES, Moons, Fayette Co., O.

FOR SALE.—1200 lbs. extracted white-clover honey in barrels or 60-lb. cans, as desired.
E. J. BAXTER, Nauvoo, Ill.
1tfdb

NEW KODAKS.



"You press the
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we do the rest."

**SEVEN NEW STYLES AND SIZES,
ALL LOADED WITH TRANSPARENT FILMS.**
For sale by all Photo. Stock Dealers.

Send for Catalogue. **THE EASTMAN COMPANY,**
ROCHESTER, N. Y.
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IMPROVED EXCELSIOR INCUBATOR



Simple, Perfect and Self-Regulating.
Hundreds in successful operation. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other hatcher. Send 6c. for Illus. Catalogue.

Circulars Free. **GEO. H. STAHL, Quincy, Ill.**

In responding to this advertisement mention GLEANINGS.

Bee-Keepers' Supplies.

Hives, Honey-Cases, Sections, and Frames. We are the only concern in Southern California who make a

SPECIALTY OF BEE-KEEPERS' MATERIAL.

Agents for the white basswood 1-lb. sections. Send for catalogue and price list.

OCEANSIDE MILL CO.,
Oceanside, Cal.

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ALLEY'S IMPROVED AUTOMATIC SWARM-HIVER.

Thoroughly tested, and guaranteed to **SELF-HIVE** every swarm that passes through it. Sample mailed for \$1.00.

AMERICAN APICULTURIST one year and Swarmer by mail, \$1.50. Sample **APICULTURIST** with full description of **SWARMER**, illustrated, free.
H. ALLEY, Wenham, Mass.

In responding to this advertisement mention GLEANINGS.

Bee-Keepers' Supplies.

WHY ÷ SEND ÷ LONG ÷ DISTANCES ?

SEND YOUR ADDRESS (DON'T FORGET THE COUNTY) FOR MY NEW PRICE LIST FOR 1891.

C. P. BISH, Grove City, Mercer Co., Pennsylv'a.

ESTABLISHED IN 1884.

7tfdb

Please mention this paper.

NEW SPACERS for L. frames; accurate, 1½, 92 to the pound. Fully practicable for frames in use. Prices, 1 to 5 lbs. at 16c; 5 to 10 lbs. at 15c; 10 to 25 lbs. at 14c. Send stamp for sample. Address G. L. TINKER, New Philadelphia, O. 24-1-21



Vol. XIX.

JAN. 1, 1891.

No. 1.

TERMS: \$1.00 PER ANNUM, IN ADVANCE;
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STRAY STRAWS.

EDITED BY DR. C. C. MILLER.

What a winter!

Bees flying a little Dec. 15.

What splendid kindling old wood separators make!

SUB-VENTILATORS are still in high favor with Mrs. Harrison.

I don't know how Rev. W. F. Clarke can make such good poetry about what he doesn't know.

American Bee Journal for 1891 is to have 1664 pages. How does friend Newman expect us to bind it?

Winter days have come,
Bees no longer hum;
They hibernate some.

If 3 lbs. of honey make 1 lb. of wax, wouldn't it be better to raise wax at 20 cts. a pound than to raise 5-cent honey?

A writer in the *British Bee Journal*, who has "both straw skeps and movable-frame hives, likes the latter better."

CLOSED-END FRAMES, according to W. Camm, in *The Guide*, do not have the combs fastened as well to the end-bars as open-end frames.

Heddon says that one of the reasons (and he puts the reason in capitals) that he sold his honey so quickly, was, that he *kept the prices down*.

I have four colonies of bees outdoors—the first in perhaps 20 years. "Why haven't I tried it before?" Well, I don't know whether it was more prejudice or laziness.

Rev. W. F. Clarke and Bro. Newman are having quite a controversy as to whether Canadians are Americans. When they agree on it, we'll know for sure just how it is.

HILL AND HUTCHINSON are down on the corners of the Dovetailed hive. Is there any law to prevent the two H.'s from making the same hive with an improved corner, like a common store-box?

COVER PICTURE.—That of the *Review*. It's ahead—neat, appropriate, beautiful. The only chance for any one else to beat Hutchinson is to copy his cover, and then sew it with colored instead of white thread.

"LOCK-JOINTED HIVE-CORNERS" is the heading to an item in the *Review* about the "so-called Dovetailed hive." Say, W. Z., why didn't you, years ago, lift up your voice against the "so-called dovetailed" section?

Hasty thinks 3 lbs. or less of honey will make a pound of wax; Simmins, less than $6\frac{1}{2}$ lbs.; tradition, 20. Don't we stick to that 20 from mere habit? I do. Has there been a single experiment of late years to confirm it?

Whether your cellar needs ventilation for the bees or not, if your wife and children are worth keeping you will do well to see that the air in your cellar is sweet and pure at all times. Pure air won't hurt the bees, at any rate.

JAPAN CLOVER is spoken of in the *American Bee Journal* as a kind that flourishes well, at least in the South, doing well even on the poorest, stoniest land. It is highly praised as a plant for grazing, but nothing is said of its value for honey.

UPWARD VENTILATION, according to the *British Bee Journal*, is not desirable. It says, "Personally we prefer to keep the top close—just as the bees will make it if left to themselves—and to ventilate from the bottom. We have come round to this view after trial of both methods."

BLACK BEES the *British Bee Journal* decidedly prefers to the Italian, for profit and for all-round superiority. It says, "After several years' trial, our most experienced and success-

ful bee-keepers have generally discarded Italian (or Ligurian) bees in favor of the old black or brown variety." How's that?

A British writer recommends having extracting-combs 2 inches from center to center, to prevent the queen going up into them. I think there is something in it. With 2-inch sections I never had much trouble with the queen going up, even when I used neither separator nor honey-board.

Joshua Bull, in the *American Bee Journal*, thinks, "when we have frequent storms, with heavy discharges of electricity in the form of lightning and thunder, the honey-flow is apt to be light; but when there is less thunder and lightning, there is more honey in the flowers." Well, what can you do about it?

ISN'T CONTRACTION beginning to expand a little? Dr. Tinker says, in the *Canadian Bee Journal*, that contraction "is now admitted by all the ablest producers of comb honey in this country to be necessary to the best results." But he has decided, that "it does not pay to carry the contraction too far." He thinks "the equivalent of 6 L. brood-combs is the best."

AND NOW IT'S HASTY I am mad at. I like Hasty, he's always so fresh and bright. But in the *Review* he hints that the venerable falsehood, that it takes twenty pounds of honey to make one pound of comb, is kept alive by the bee-journals in the interest of the foundation business. Hasty, did you ever know any of them to suppress any evidence that 3 lbs. of honey make a pound of wax? That hint wasn't nice. It was hasty—almost with the top knocked off the h.

FOUL BROOD in Canada is not likely to be kept hidden. Any person, whether bee-keeper or not, who knows of a case and does not report it to the proper authority, "shall, on summary conviction before a justice of the peace, be liable to a fine of \$5 and costs." That's right. It's different here. At a bee-convention a public official announced the existence of a large number of cases of foul brood; and when I pressed for the names, he said he would not tell, *because the parties did not want it known!*

ARTIFICIAL INCREASE is practiced by E. France to prevent swarming. He runs out-apiaries for extracted honey, with no one to watch for swarms. He visits them every week to ten days. When they get so strong that there is danger of swarming in a good honey-flow, he takes from each such colony about two combs of honey and brood—mostly brood—taking bees with it but no queen, and puts in place empty combs or foundation starters. Thus from 3 to 6 colonies he gets enough to fill an empty hive, which in a few days makes a strong working colony. Next visit he cuts out queen-cells.

AMOUNT OF STORES FOR WINTER, ETC.

G. M. DOOLITTLE GIVES US SOME FACTS GLEANED FROM YEARS OF EXPERIENCE.

The following from a correspondent is just at hand: "How much food does each colony of bees require, in order to winter successfully? I find Mr. Hasty telling in the *Review* of starting doubled-up colonies with as little as five or six pounds, while some of the 'doctors' say that fifty pounds in a hive is better than any thing less. Which am I to believe? and what am I to understand by this great difference of opinion?"

Well, these things are often very confusing to a beginner, and I do not wonder at it; but, as a rule, the writer of an article in any of our peri-

odicals can not well go into all of the minutiae connected with his or her subject, because it would make too long an article for one number or issue of such periodical; and continued "stories" do not seem to be just the thing for a bee-paper. That none need be thus confused, my advice to *all beginners* would be, that they purchase one or more of our valuable books on bee culture, and in these they will find the most if not all they want to know about spoken of at length, and the reasons for the writers' opinion given, so that they can form an opinion at once whether the writers' views are correct or not. With this prelude I will proceed to answer as best I can.

While I do not think that 50 lbs. of honey should be required to winter a colony of bees, under any condition, yet the amount required depends very largely on the location, whether the bees are wintered in the cellar or on the summer stand, and upon what is meant by "winter." It will be plain to all, that more stores would be required to winter a colony where winter held its sway from the middle of October to the middle of April, as it does in some of our most extreme northern localities where bees are kept, than would be required in some of the more southern localities where winter does not last over two months.

If I understood Mr. Hasty aright in the *Review*, his idea of so little honey was to give only enough honey during the winter months *proper* to supply the "fuel" required to keep the colonies warm, and not to supply them food for brood-rearing in the spring. He argued that this scanty supply of food tends to make the bees retrench, and so they would use this supply *only* for fuel, and thus early brood-rearing, which is considered by many to be of no advantage, would be done away with, thus wintering our bees at little cost, and at the same time place them in a condition which is most conducive to their prosperity. But Bro. H. did not calculate that the supply he gave them in the fall was to last them till honey was gotten from the fields in the spring, for he plainly told us that he had a supply reserved, to fall back on when the supply given in the fall gave out.

The only thing I see against this "short-store" plan, as given by Bro. H., is, that in our locality the bees might run out of supplies at a time when it would be impossible, on account of protracted cold, to supply their wants, thus increasing the probability of loss to those who are a little inclined to be careless with their pets. Years ago, when I first began to keep bees, I thought that each colony wintered on their summer stand should have at least 30 lbs. of honey to carry them from the first of October to the first of May; but after repeated trials I am fully satisfied that 20 lbs. is just as good as 30, and I find that not one colony in 25 will consume 15 lbs. during this time. The only reason for giving the 20 lbs. instead of 15, lies in the fact that the bees will retrench when their stores are getting low, just as Bro. Hasty tells us; and if this retrenching comes when the bees ought to be rearing brood, then we are losing largely by not having honey enough in the hive to keep brood-rearing prospering as it should.

I claim that all colonies wintered on the summer stand should have at least ten pounds of honey in their hives the middle of April, in this locality, to give them the confidence they need to start out aright with for the season; for with this amount of stores they will not feel the need of retrenching, but will push brood-rearing on rapidly. If they can be wintered on 5 lbs. up to this time, so much the better; but, if at this time they do not have plenty of honey it should be supplied to them in some shape. For cellar wintering I allow 5 lbs. less honey than for out-

door wintering, finding that, as a rule, $1\frac{1}{2}$ lbs. of stores per month is the average amount consumed by the bees while in the cellar. Now, where we feed our bees, no matter how done, I find that it can be done to better advantage in the spring than in the fall, for the bees will go to brood-rearing with renewed vigor where fed; and for this reason I would say, give the bees only enough to safely carry them through to May, then supply their wants by feeding the amount you would otherwise have given them in the fall. The amount which I think right in this locality, I have given above.

INTRODUCING QUEENS TO QUEENLESS COLONIES IN THE SPRING.

Another correspondent wishes to know whether he can successfully introduce a queen to a colony which has been wintered without one. He seems to fear that such a colony would establish laying workers during the winter season, and thus make the introduction of a queen a perilous undertaking. I do not know that I ever placed a colony in winter quarters, knowing that they were queenless, but I have several times had queenless colonies in the spring which I believed had been queenless nearly all winter, and had no especial trouble in getting them to accept a queen at that time. I can not say for certain, but I do not think that the bees would establish laying workers while in winter quarters; at least, I never knew of a laying worker, in this locality, earlier than the first of June. Can any of the readers of GLEANINGS give us any light on this subject? It would have much to do with our trying to winter over queenless colonies.

G. M. DOOLITTLE.

Borodino, N. Y., Dec. 17, 1890.

[I heartily agree with you, friend D., in every thing you say, only you do not consider at all the strength of the colony. When we used to try to winter nuclei, say with a quart of bees or more, if we succeeded in getting them to pull through, they consumed, of course, but a small quantity of food; and if they dwindled down so there would be but a pint of bees in the spring to build up with, it took only a very small amount of stores for them to build up. I think I have wintered nuclei with not to exceed 5 lbs. of stores; and this took them clear up to the bloom of the soft maples; and at the same time I have had powerful colonies, say with four times as many bees as the nucleus mentioned, that would consume 20 lbs. It is true, however, that less stores will be needed in proportion for a powerful colony than for a weak one, especially during winter time. As the powerful colony will, however, start a tremendous sight of brood before the nucleus has commenced brood-rearing at all, they will need stores correspondingly. And the amount of brood reared, and the time when brood-rearing commences with a certain colony, has very much to do with the amount of stores needed. We therefore finally arrived at the conclusion of many of our veterans, that each *full* colony should have from 20 to 25 lbs. of stores, in order to be *absolutely* safe, providing they were not looked over in the spring especially to see how their stores were holding out. But with this large amount of stores, many will often have sealed stores left when work commences in the boxes; and this is an argument in favor of ten-frame hives instead of eight-frame. The two extra frames *may* contain surplus stores the year round, as a sort of reserve force to fall back on in case of drouth or famine, or excessive brood-rearing.

I can not remember that I have ever had any trouble in introducing a queen to a colony found queenless in the spring; and we, in such

cases, turn them right loose, the bees often receiving them with a roar of applause. I do not know that I ever saw them "swing their hats," but they make a loud buzz with their wings, and the news passes from one to another very much as shouts of applause go through a crowd of human beings.]

WHITE SNAKEROOT (EUPATORIUM AGERATOIDES).

DOES IT CAUSE THE DISEASE CALLED "MILK-SICKNESS"?

Friend Root:—Prof. Cook pronounces the plant sent by Mr. Hastings (see p. 793) "the common boneset, or thoroughwort, sometimes called white snakeroot." Although I am not a botanist, I can tell the professor, that, although they may be ranked with the same family of plants, there is quite a difference. Boneset is a much larger, stronger-growing plant than snakeroot; and the leaves that spring from the body of the main stalk entirely encircle it, so that they connect with one another, and the stalk has the appearance of growing *through* the blades, while the snakeroot is entirely destitute of the band that encircles the other. The seed-blossoms on the top of the plants resemble each other very much. There is a mistake somewhere. Mr. Hastings may have sent thoroughwort instead of snakeroot; and if he did, the professor made a mistake.

In regard to the "trembles" in cattle, and milk-sickness among those who use the milk of cows that eat it, I have had a pretty sad experience, but not as bad as some of my neighbors. When I came to Ohio in 1844 I heard that there was a section of country on the road from Medina to Seville where the settlers had been afflicted with a strange malady that the doctors could give no name to, and several deaths had occurred the year before; but the general opinion was that it was somehow caused by the water. I took up a new farm on the road one mile west of the main road to Seville, but my neighbors' woods and mine joined, and then everybody's cattle ran in the woods; but it was so much trouble to hunt mine up that I cut a "slash row" around *my* lot. Well, we would hear of sickness *east* of us; but with the exception of a little ague, one year, we enjoyed good health for ten years; but the year 1855 was a dry one in the latter part of the summer, and the water failed on my farm. I let my cattle into the woods for water, and, of course, among the snakeroot. Soon a sucking colt died; then my oldest boy was taken ill, and then there was a general bad feeling, among us all; but I did not send for a doctor, for I dreaded *them* more than any disease: I was then 46 years old, and my wife 41; but neither of us had ever taken a dose of medicine of any kind *from a doctor*. A week passed; wife sick; yearling steer died with trembles; shut the cattle out of the woods, and cut corn for them. Stephen, my boy, had been seven days without any thing passing his bowels—could eat nothing, drank but little, and generally threw that up.

I would say here that we had abandoned the use of milk and any of its products. Stephen said that he wanted some *ice*. I took the old jumper from the stable, mounted her, and took a pail and went to the village and got a good big "hunk," and cut it up so he could get the pieces into his mouth, and he "crunched" it up and swallowed it before it had a chance to melt. After a short spell he commenced to vomit, and threw up not only the water but the contents of a very foul stomach; and from that hour he began to mend. Suffice it to say, that, of the seven of us in the family, we were all sick but

the six-year-old boy (the youngest), and he had generally eaten much more *maple sugar* than he had *butter*. I was called a stubborn, stingy, ignorant, wicked man because I would not have a doctor; but we all lived, while several of my neighbors died, with the doctors all around them.

I have written these lines so that any one sick with that complaint may have the benefit of my experience. I consider Dr. Tyrrell's remarks on page 779 of GLEANINGS to be like "apples of gold in pictures of silver" to any one who will heed them. JESSE HARRINGTON.

Medina, Ohio, Nov. 25.

[Friend H., do not be too severe on Prof. Cook. We find, by the botanics, that the thoroughwort, or boneset family, includes a very large number of varieties; and although the white snakeroot looks very different indeed from what we in our locality call boneset, or thoroughwort, it is still one of the species included under that name. Years ago I sent a sample of the plant to Samuel Wagner, and my sample was taken from the very woods you allude to in your article. He at once pronounced it white snakeroot, or *Eupatorium ageratoides*. The piece of woods has always been of great interest to me, from the fact that, as cattle and all other stock have been for so many years excluded, it is becoming a dense thicket of trees, plants, and shrubs—quite a contrast, in fact, to most of the timber land throughout Ohio. From the fact that stock has been for so many years excluded from the woodlands where this plant seems to thrive, I am inclined to think that it, or some other one, has something to do with milk-sickness. Years ago I thought it richly deserved a place in our greenhouses on account of the beauty of its snow-white mass of bloom, and I remember well when I first found it in a greenhouse. Now almost every florist has one or more varieties of *Eupatorium* with their downy tassel-shaped flowers of snowy whiteness. Recently a tinted variety is found in some collections. The little flowers and the mass of bloom have become developed by greenhouse-culture to much greater size and magnificence than they are in their native woods. Bees get an amber-colored honey, of a peculiar rich flavor, some seasons, from this plant. Perhaps I should mention that thoroughwort has a strong, sweetish perfume—sometimes so great as to be almost sickening, while the snakeroot-blossom has no trace of this distinctive perfume at all. It has, however, a delicate sweet perfume of its own, but not at all like the thoroughwort.]

BEE-KEEPING FOR WOMEN.

A FEW THINGS THAT HELP MATERIALLY TO LIGHTEN THEIR LABORS.

Under favoring circumstances I can put in a long day's work with bees—often, in the busy season, getting up at four o'clock; and, when at work in the out-apiaries, not reaching home until nine o'clock in the evening. But I feel pretty sure that, under some circumstances, it would be very little work I could do with bees. Take, for instance, the matter of shade. If I were obliged to work in some apiaries where they arrange their hives in an open plat with only shade-boards or vines, and the operator is obliged to take the full rays of the hot sun, I am afraid it would be a very short time that I could stand it. In our apiaries the hives are so arranged that they are in the shade at least part of the day; and in planning our work for the day we always, so far as is possible, see to

it that those hives which will be in the sun in the afternoon are worked in the forenoon, and *vice versa*. Sometimes we don't plan just right; then Dr. Miller takes the sun. I suppose men are better able to stand the heat than women; but I can hardly see why it is necessary for either to do so. What objection is there to trees, providing the shade is not too dense? They help the bees to mark their location; and, oh they are such a comfort to the bee-keeper if he keeps them trimmed properly!

Last spring we were very busy, and neglected to trim the branches in the Wilson apiary. Whenever I heard an ejaculatory "oh!" I knew what the matter was, and would look up to see Dr. Miller's hat jammed over his eyes, and both hands full. One day, after having been tried in that way a number of times, he stopped short with a remark something like this: "I'm going to trim these branches, even if I don't do another thing to-day." He did trim them and it didn't take so very long either, and they had been a big nuisance for some time. You see, I rather had the advantage of him, for I could pin my hat on firmly.

It's the little things that help to make our work hard or easy. I should hardly like to work with bees if I were obliged to do all the heavy lifting. But Dr. Miller kindly favors me in that direction—so much so that I remonstrate sometimes. He generally assures me that it is pure selfishness on his part, as he wants to get as much help from me as possible, and knows I can accomplish a good deal more if I don't overdo. Every lady bee-keeper will find a pair of rubber boots and a good gossamer (one with sleeves if possible) a great help—in fact, almost a necessity. Showers sometimes come up when work is pressing, and you are obliged to keep on. I have in mind twice this last summer, when we worked in a pouring rain because we had a lot of queen-cells that must be attended to at once.

Again, you can not wait in the morning for the grass to dry off, and you will find your rubber boots a great convenience. Now, don't say, as I did, that they are entirely too heavy and warm, and that you know you never can wear them. Well, I *had* to, as Dr. Miller got me a pair and insisted on my trying them. I like them. So will you. EMMA WILSON.

Marengo, Ill., Dec. 15.

[Good shade in an apiary is indeed a luxury, even to a *man*, and to the poor bees, also, when not too dense. It is very hard to be obliged to work in the hot sun, over hives all day, without at least a little shade a part of the day. Shade-boards are inconvenient, as you say. About the best thing, I think, is small trees, or trees that do not have a very dense foliage. Large apple-trees are rather bad; small ones are just right. Grapevines are hardly the thing, in my estimation. They require such constant trimming, and that during the busiest part of the time in the apiary, that either one or the other of two things happens—they are either neglected, or they stick out in the way unless attended to so that they take valuable time away from the bees. A small boy can do it, it is true; but somehow or other it does not get done at our home apiary. I never had my hat crammed down over my eyes as you say Dr. Miller has had, but I have had an ugly shoot from a vine that had been cut off, punch me in the face; and I have felt more than once as if I wanted to tear the whole thing up, root and branch. This matter of shade is one of the important questions, and I hope our correspondents will discuss it.

You will remember, three or four years ago I recommended light rubber boots to work with

in the apiary, and I am glad you have spoken of their convenience to *women*. Very often, during the morning, the grass will be soaking wet; and if your yards are like ours, somehow or other the grass will become long, so as to make common rubbers an insufficient protection. After I had recommended light rubber boots we had quite a number of orders for them. I would say to our good friends, that we sell a good many things; but boots are among the articles that we do not wish to handle just yet. The kind I mentioned can be obtained at any of the stores.] E. R.

RAMBLER IN PROVIDENCE.

HOFFMAN FRAMES AND BEE-SPACES; NO
BURR-COMBS.

[We performed the duties required of us on the apiarian exhibit; and not seeing much anger in the faces of the exhibitors, we concluded it was safe for us to stop a few days in Rhode Island. We learned that Mr. Cushman was doing a good work at the Experiment Station, and it was through the unremitting labors of Mr. Miller and Prof. Cushman that the premium list was extended and the exhibit enlarged; and if the people of Rhode Island remain in ignorance upon bee-keeping and the methods of honey-production, it will not be the fault of the bee-keepers. The exhibit from the Experiment Station was intended to be instructive;

ment is mostly in the morning and evening. The rest of his time is devoted to banking business in the city. It is a delightful run out of Providence to Barrington. We follow down Narragansett Bay; and the many beautiful cottages along the shore and upon the islands reminded us strongly of our own lovely Lake George. Here, however, instead of fishing for pickerel, larger game was sought after. Only swordfish, sharks, and kindred fish, will satisfy the ambitious fisherman of Rhode Island.

Stakes protruding from the water all along down the bay were pointed out as the boundary lines between the oyster-beds, from which the Rhode Islander derives a large revenue. When we left the rails, and rolled peacefully along in a chaise behind the pet horse of the family, we remarked about the hardness and pearly whiteness of the roads, and were informed that they were made so by the liberal application of oyster-shells; and when informed that there were miles and miles of such roads, and thousands of loads of shells were used for other purposes, we began to realize the magnitude of the oyster-business. As you may suppose, these beautiful roads are a veritable paradise for the bicyclist, and we found Mr. Miller owned such a pet, and was expert in its use.

Mr. Miller has a commodious and pleasant home, with a wife and three little ones to welcome him after the cares and fatigues of the day. In the rear of the house is a large yard and kennel for the pet blood-hound; and be-



ARTHUR C. MILLER'S HOME AND HOBBIES.

and at almost any time of day we found Mr. Cushman patiently answering questions and correcting erroneous ideas.

□ Several of the exhibitors acknowledged themselves to be merely amateurs, and had taken it up for its diverting effect. Mr. Thos. M. Pierce, of Wickford, lost his health by too close application to business, and had gained a very good degree of vigor among the bees and flowers. Mr. Pierce and family adopted the novel plan of eating as much honey as they could, and giving away the rest. One youth, with a taste for sweetness, got away with over 40 lbs. It proved a sure way of using up the surplus; but when he changed the order of things and put the usual price on his goods there was a sort of reaction. The recipients of past favors were no better customers than outside parties.

At the close of the day's labors we were whisked off by rail to Barrington, and the residence of Arthur C. Miller, several miles out of Providence. Mr. Miller's time at bee-manage-

yond, the poultry-house with the pet rooster. A cow has been added recently to give pure lacteal food for the little ones, and to give Mr. Miller necessary recreation in the early morn. A cow is always an object-lesson of patience, and there is not a family in the land that does not venerate the family cow. The manipulator of the lacteal glands is also taught the virtues of patience, especially when flies abound.

A few years ago Mr. Miller had a fine apiary; but sickness necessitated a change of climate, and he spent the winter in California, leaving his bees in the hands of inexperience. A severe loss followed, and the apiary has to be built up again under the master's hand. This will soon be accomplished, if future seasons equal the present. With three full colonies and two nuclei in the spring, an increase to ten has been made, with abundant winter and spring stores, and 385 lbs. of surplus, both comb and extracted; and, under careful management, the honey is of a gilt-edged order, and commands a good

price. Rhode Island bee-keepers, as far as we observed, sell all their honey in the home market, and we saw no piles of special shipping-crates in their apiaries.

The Hoffman frame is used in this apiary, and the spacing of frames, and from frame to honey-board or crate, is large enough to give the bees easy access, and no larger—we should say a scant $\frac{5}{16}$; and when the crates are removed, not a brace-comb is visible. Italians and Carniolans are in the apiary; but Mr. Miller favors the Carniolans, and often laments the loss of a valuable strain of them when he was absent. He has not replaced them, but hopes to find ere long a Carniolan with all the desirable qualities.

As your readers will remember, Mr. Miller is the inventor of the best foundation-fastener yet devised. We here saw its practical working for the first time, and foundation can be securely stuck to the sections with rapidity, leaving no thick rib next to the section. The apiary is comfortably located under the spreading branches of apple-trees of the Roger Williams variety. We did the town of Barrington, and found many elegant residences. City people live out here, and spend their surplus dollars in adorning their grounds, and they are good to look upon; but the greatest comfort a Rhode Islander can attain to is a clam-bake; and every cottage and club-house along shore is provided with the necessary appliances to produce the effect. It was a little late in the season for bakes, but we heard so much about them that we feel quite well posted on clams.



A CLAM BEE-KEEPER OF THE "BRIMSTONE" DAYS.

The clam is a very conservative animal, and is seldom influenced by outside considerations. The clam is considered selfish, as he shuts his door in the face of all intruders, and even his aunts, his uncles, and his cousins are served the same way. The clam will not open his doors to the interviewer, and all he wants is to be let alone, to pursue the even tenor of his way just as his grand-dad did. If Mrs. Clam wants to put on an airy back kitchen, or a front bay window to their old shell, Mr. Clam gets in a rage, and closes his front doors closer than ever. Scientists do not agree as to whether the clam is a biped or a quadruped. Usually just after Mrs. Clam has given him an extra good dinner, he has a faint resemblance to a biped; at all other times he has all the qualities of a quadruped. "Don't be a clam," is the advice of the RAMBLER.

[I have a great respect for a man who has hobbies, particularly if they are of a kind that

makes the man love home and family more. A man who loves pets, and is kind to them, will necessarily be kind to his family. What you say regarding the Hoffman frames, and their freedom from burr-combs, is literally true. I saw the same state of affairs in more than one apiary in the East; and I confidently expect it in our own yards at an early date.] E. R.

THE DOVETAILED CHAFF HIVE.

OBJECTIONS TO THE OUTSIDE WINTER PROTECTING-CASE.

There are decided objections to such an outside case as is suggested by Ernest on page 698. If made the size mentioned, there will be too little space for packing. There will be some difficulty, I think, in adjusting the cushions so that one can always feel positive that there are no unoccupied spaces left for the free circulation of air.

The adjusting of cushions and case will require a skilled workman, and will consume more time than would be required to tuck up the same number of colonies in regular chaff hives.

There are too many pieces that will need storing for a part of the year, causing too much carrying back and forth between the stands and the honey-house. A little extra cost of a hive, when used for a term of years, is a small thing; but a little extra work, often repeated, is of some importance; and the longer the hive is used, the smaller is the importance of the cost and the greater the importance of the time consumed to manipulate it.

If it were possible, there should be no part of the hive requiring storage at any time, excepting the supers. These we want stored during the winter, so that they may be filled with sections for the following season.

It is true, that such a temporary winter case can be used by those who already have their bees in the Dovetailed hive. This is some advantage, but not as great as at first appears; for if we adopt an eight-frame chaff hive, the Dovetailed hives thus relieved from service will not be lost, as, with such a hive, we shall need a number of just such bodies for summer use, with which to form nuclei, to hive swarms, and to form second stories for extracting, if such should be needed. If there were a greater number than would be required for these purposes, they could easily be ripped in two, and thus be converted into supers.

Another advantage of such a case is, that it could be used early in the honey season to protect the supers from cold. Later, as the hot weather comes on, they might be converted into quite efficient shade-boards by removing the cushions. For this purpose they would require to be a little larger than suggested—large enough, in fact, to slip over the Dovetailed cover.

The advantage of cheapness, which Ernest urges, I am not willing to admit. His statement of the cost reminds me of a woman of my acquaintance, who regularly, every Monday morning, says to her little boy, "Now, Johnny, mother washes to-day, so you must bring a pail of water before going to play." Johnny willingly brings the stated amount, when his mother says, "Now another." After that has been brought, "Now another;" then, "Now another;" then, "Now another;" then, "Now another;" then, "Now one more." It is fortunate that the mother always stops at the sixth pail: for about that time there comes a look on Johnny's face that leads me to think there might be a small rebellion were she to call for the seventh. To keep us

good-natured, tell us right at the start how much this 35-cent chaff hive will cost, when you have figured in all that will be required to make it a complete one-story chaff hive. Let us see. There will be one dovetailed body; one bottom-board; one piece of duck to cover the frames; one cushion to cover the duck, and one long cushion, over five feet, to surround the dovetailed body.

If, after thoroughly discussing the matter, the committee find sufficient advantages to overbalance the disadvantages, why not compromise the matter a little and construct it so that it can be used either in the way mentioned, or converted into the permanent outside shell of a one-story chaff hive? Make it of $\frac{3}{8}$ -inch lumber, dovetailed at the corners, as proposed, but somewhat larger, so that it will take thicker cushions. Instead of a complete cover, put on a rim-piece somewhat similar to those used on the other chaff hives. When the rim-pieces are in place, the shoulder should be just like the upper edge of a dovetailed body—flat— $\frac{1}{2}$ -inch wide on the side, and $\frac{1}{2}$ inch on the ends, and should stand sufficiently above the rest of the rim to admit of the use of the regular dovetailed cover. To use as a removable winter protection, adjust the case and side cushions, just as you would the one proposed by Ernest. Now you have access to the top, and can tuck in the top cushion so that you are positive every thing is snug. Then just slide on the regular hive-cover, and make it useful winter as well as summer. You may not wish to examine your bees at all from the time they are prepared for winter until the next season; but it is worth something to know that you can do so if you wish, without tearing your hive all apart.

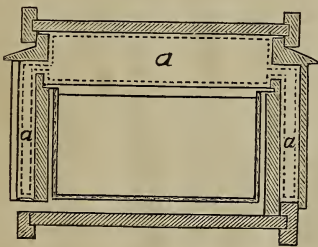


FIG. 1.

To make a chaff hive with permanent packing, there will be needed an inside shell made of $\frac{3}{8}$ -inch lumber, and dovetailed at the corners, and bottom-boards similar to those used in the other chaff hives, if it is thought advisable to have packing under the brood-nest.

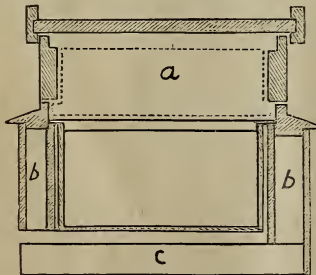


FIG. 2. KING'S PROPOSED OUTSIDE PROTECTING-CASE FOR THE DOVETAILED HIVE.

Since it has been decided to use such a large entrance, winter as well as summer, what is the use of extra protection at the bottom? Why

not use only one bottom-board, leaving simply a dead-air space beneath?

Figure 1 shows a longitudinal section of a Dovetailed hive, with the protection and cushions, *a, a, a*, in place.

Figure 2 shows the case made into a chaff hive, in which *a* is the chaff cushion; *b, b*, chaff packing, and *c* a dead-air space.

Marysville, O., Dec. 15.

W. A. KING.

[Criticisms are always in order, friend King, and I am free to acknowledge that you make some good points. Let us consider some of them *seriatim*. Allowing me to be the judge (for I have tried them), the adjusting of the outside cases, as you suppose, will not take nearly as much time as the same number of colonies in regular chaff hives, and there is going to be, I think, nothing to lug back and forth. These outside cases will be needed in summer for comb honey, as a protection from the hot sun. Elwood, with his thousand colonies, uses just such an outside case for shade, and he did not consider it a superfluous affair, if I remember correctly. Of course, the cushions would have to be put away; but then, we have to do that with our regular chaff hives. We can not afford to have great lumbering cushions on the hives during the entire summer; and in the production of honey they must necessarily be removed to make room for the supers. You say, a little extra cost of the hive, when used for a number of years, is a small thing. Very true; but the smaller this extra cost, the smaller this thing becomes. A regular chaff hive is not adapted for moving, but a single-walled hive is. Toward winter the outside cases can be hauled to the yard and set over the hives.

The committee had already in mind such an outside protecting-case as you outline in your diagram above; and there is no getting around it, there are some good things about it. But such a case would assuredly have to be stored away in the summer, and, besides, it could not be made to answer for shade. It would not do to leave it on during summer, because that would destroy the bee-space; that is, the space *a*, in Fig. 1 above, would be anywhere from two to three inches—hardly enough to allow room for a super, and too much room without a thing in which the bees can store honey. It is true, in Fig. 2, that you can put on a super; but then, there is about a two-inch bee-space under it. For extracting, this can be remedied by using frames a little deeper. But you would then have two sizes of frames in the apiary, the one so near the depth of the other as to make it a nuisance. I do not see any practical way of making a water-table to be used in a regular hive, so that it will not destroy bee-spaces. Of the two arrangements, I think the outside protecting-case, such as I outlined in GLEANINGS some time ago, is much preferable. Reports now coming in show that it has already been in use, and is giving good satisfaction.] E. R.

MRS. AXTELL'S EXPERIENCE AT THE KEOKUK CONVENTION.

CONTINUED FROM LAST ISSUE.

I felt amply repaid for my trip to Keokuk, if for no other reason than to meet so many of our editors and bee-keepers themselves, and exchange the friendly greeting, some of whom I have known for many years, and been greatly benefited by reading their articles, but have never been permitted to meet before. Why, it would have almost paid me for going, just to hear Dr. Miller, who is the very embodiment of music, render his sacred and comic music. If

any bee-keeper is troubled with indigestion, or the blues, let him attend these conventions and hear Dr. Miller render his side-splitting comic pieces (as Ernest calls them in GLEANINGS); and I miss my guess if he does not return home very much improved in health as well as spirits.

Among the supplies shown at the convention was a section foundation-fastener, which I purchased and brought home with me. I like it very much better than the Parker machine. It does its work much more accurately and more rapidly than any other process I have ever tried. I feel sure I can trust my help to put in starters with this fastener, which we never succeeded in having done accurately with other machines. This is Mr. Bittenbender's machine. I think he told me he had it patented, but I am sure no one will hesitate to expend 50 cents for so good a fastener when he has tried this. He is quite an enthusiast in his work. His wife was intending to come with him had not his little child got badly burned a day or so before.

QUITE A JOKE ON US.

The night after the convention closed, we thought to remain at the hotel where it would be quiet, rather than to travel on the cars, as we were going over into Iowa; but about 10 o'clock, dancing and music began, and it was kept up until about 2 o'clock in the morning. Doors banged every two minutes, it seemed to me, all night, and people kept up a continual tramp, tramp, by our door, until I thought sure I was in bedlam for once. We had just fallen asleep when the lady of the house called us at 4 o'clock to take the train west. As I passed along by farmhouses I kept on the watch for bee-hives, but saw none until we reached about the middle of the State, where we found one small apiary on the north side of a steep hill. Probably there were bees, but not in sight of the cars, until we reached Afton, and there we passed a beautiful little apiary of 50 hives. They looked real pretty, standing in straight rows, and hives so white and clean, on a side hill sloping toward the railroad track.

As our friends we went to visit lived in Afton, we found the owner of that apiary was Mr. W. R. Hunter. Mr. Axtell called on him and found him to be quite an enthusiastic bee-keeper. He had just invented a foot-power saw that Mr. Axtell said was ahead of any saw he had ever tried. With this saw he sat down. To work it he used both feet. He had applied for a patent upon it. He winters out of doors in double-walled hives, and seldom loses a colony if properly prepared for winter with good stores. His bees were all pure Italians except two or three hybrid colonies.

About a mile from Mr. Hunter lives Mr. Sype, who has about 50 or 60 colonies. They both reported a fair crop of honey from colonies that were in good condition in the spring. They both use a double-walled hive without chaff packing, which, he claims, is almost air-tight, or almost holds water on all four sides. The corners have tin strips tightly nailed on. He claims for them that they are almost a non-swarming hive, as the dead-air space keeps them cool, even in the hottest place; and just before they swarm he takes out the combs that have the most honey in, and removes the center combs full of brood to the two sides, and puts three or four empty frames with starters in, in the center, or uses empty brood-frames if he has them. With that treatment he said he seldom had a swarm; but he has not been in the bee-business many years, and it has now been several years since we have had many swarms; but let a heavy honey-flow come again, especially early in June or the last of

May, and I believe he too would have a plenty of swarms.

If we can be prepared to care for swarms, and hive them so as to return them after the colony has lost its swarming fever (especially all colonies that are not very strong), I think it just as well to let swarm, as it seems to be nature's way; and a colony that has swarmed, and gets settled down to work, works with much energy and vim.

Our last shipment of honey to Chicago brought us 18 cents wholesale, and we are selling cut-out honey in new tin pans with glass shades over it, in Roseville groceries, at 18 cents, and take it in trade. MRS. L. C. AXTELL.

Roseville, Ill., Dec., 1890.

CANE SUGAR.

PROF. COOK TELLS US A GREAT DEAL ABOUT SUGAR OF ALL KINDS.

Since you ask me to state whether there is any difference between beet sugar and sugar made from cane, you must excuse me if I am quite scientific. I see no way to avoid it; but I promise to be as brief as possible, and to try hard to make all plain to all.

There are several tests of sugars: First, their chemical composition; 2, their reactions with various chemical reagents; 3, the way they rotate the polarized ray of light; and, lastly, their solubility and assimilability. Now, so far as we have any knowledge, the sugar from beets, from cane, from maple, and from the nectar of flowers, is precisely the same in all these respects. It is known as cane sugar, or sucrose. It has the following chemical composition: $C_{12}H_{22}O_{11}$. C stands for carbon, H for hydrogen, and O for oxygen. It will be seen that the H and the O are in proportion to form water, the symbol of which is H_2O . This is true of all the sugars and starch, as such substances are called carbo-hydrates. The same is true of lactose, or milk sugar. These sugars rotate the ray to the right, but do not decompose the copper salts. They are not as soluble, not as easily absorbed, nor as easily assimilated, as are other sugars. Thus we may believe that sugar from beets, from cane, and from maple, is identically the same. In the manufacture, beet sugar and sugar from cane are perfectly refined, or clarified, and so seem alike. Maple sugar is not so. The sugar is the same, but there are other substances present which modify the color and flavor. By the removal of these we should make maple sugar exactly like beet sugar. All water is precisely alike; but all so-called water is not so. Some is full of lime, some impregnated with iron, and some saturated with a mixture of saline substances; but these are foreign substances added. The water is always the same. The same is doubtless true of these cane sugars. As cane sugar will not act upon the copper salts, it must be reduced to glucose before it can be analyzed by the use of Fehling's test. The bee does this with nectar in changing it to honey. We do the same with cane sugar when we eat it. Thus it seems very probable that honey is a safer sugar for one with feeble digestion than is our common cane sugar. Cane sugar is not so soluble, not so easily absorbed and assimilated, as is honey or other glucose sugars. We know this; for, if the same amount of cane and grape sugar be injected directly into the blood, at different times, it is found that but very little of the cane sugar will be used by the tissues, but most will be eliminated by the kidneys. Much more of the glucose will be appropriated. This proves that glucose is more assimilable, and explains

why cane sugar must be digested before it passes to the blood. Liver sugar is like glucose in this respect. It is formed in the liver, and is probably just adapted for use or assimilation. The glucose, or grape sugar of the glucose-factories, is chemically the same—that is, all have this formula: $C_6H_{12}O_6$. Yet I think this corn or starch glucose is not the same, else why do bees dislike it, even at its best, and why is it fatal as a winter food, when honey or digested cane sugar is perfectly wholesome? It might seem that the chemical composition would alone determine the character of such substances; but this is not the truth. Thus, fruit sugar, the most abundant sugar of honey, and dextrose, the sugar of starch, have the same chemical composition: yet one turns the polarized ray to the left, and the other to the right. All the glucose sugars are identical in chemical composition; yet, as we have seen, they are physiologically quite different. We see the same truth illustrated in starch, dextrine, and glycogen. They have the same chemical composition— $C_6H_{10}O_5$; yet starch is insoluble in cold water, and gives a blue color with iodine; dextrine gives a brown, or purple color, with iodine, while glycogen, or liver starch, is soluble in cold water, and gives a brown color with iodine. While chemical composition is a sure test of inorganic compounds, it is not so with organic.

Thus we conclude, so far as we now know, that all cane sugar, of whatever origin, beets, cane, maple, or flowers, is the same, but that the glucoses, or grape sugars, though chemically alike, are not so. I think we may further add, that glucose, when of organic origin, like honey, liver sugar, and digested cane sugar, from any source, is easier of absorption, and a safer food than is starch, glucose, or cane sugar. While this last may not be positively proved, it is certainly a reasonable conclusion from the facts as explained above.

THE NATURE OF A SOLUTION.

One of the brightest bee-keepers of our country asks me if the centrifugal machines that are so effective in separating milk from cream might not be utilized in the separation of water from thin honey. Our friend, though an expert in all that pertains to practical apiculture, is evidently not informed as to the true nature of a solution. The reason that the centrifugal machine separates milk from cream is due wholly to the different specific gravity of the two. The same fact causes the lighter cream to rise to the top and leave the heavier milk below. In a solution the soluble substance is held by the water or other liquid, and all is liquid, and uniform in weight, except that the liquid is more than saturated—that is, it contains more of the substance than it can dissolve, and both will remain intimately combined indefinitely. The water or liquid will not rise to the top. For the same reason a centrifugal machine would be powerless to separate the liquid from the substance in solution. The sugar that settles at the bottom of the cup of coffee does so only because so much was added that it could not all be dissolved.

A liquid will hold only so much of any special substance in solution. If then the liquid is saturated, and we in any way reduce its quantity, we shall secure the substance previously held in solution. Boiling drives off a liquid as steam; hence by heat we thicken our honey or secure sugar from its solutions. By freezing we can also separate a liquid from the substance it holds in solution, as every boy who has worked in a maple-sugar bush well knows. Thus, to reduce our thin honey we have only to apply heat. If this latter is mild, we can thicken the

honey just as well as it can be done by the bees in the hive.

A. J. Cook.
Agricultural College, Mich., Dec. 15.

[Friend C., I am afraid you are getting in a good deal of chemistry for a good many of our readers. You have, however, brought out several valuable truths. First, we do not want maple sugar refined like beet and cane sugar, for then it would be worth no more. The maple aroma must be kept. Beet sugar and cane sugar are exactly alike because they are chemically pure sugar. Usually it costs a good deal of money to get any substance chemically pure. Even common water, when it is wanted chemically pure, is expensive. Since, however, the demand is so great for pure sugar, it is done on such a large scale by such expensive apparatus that the cost, after centuries of experiment, has become only very trifling, per pound. Water from wells and springs is never chemically pure, and seldom anywhere near it. Even rain water contains more or less foreign substances.]

Since you have suggested it, I feel quite certain that some kinds of honey might be improved by the centrifugal machine. A good many of us have seen honey that was thin and watery on top, and thick and heavy at the bottom. We have used it, by drawing off from the bottom until it became too thin, and then evaporating what remained. Perhaps a centrifugal machine would not be of much advantage after all over gravity in the ordinary way.]

ABOUT GETTING OUT BEESWAX.

FRIEND FRANCE GIVES US SOME VALUABLE SUGGESTIONS IN WORKING WAX ON A LARGE SCALE.

For several years I have used a large iron kettle in which to melt up old combs, scraps of wax material, cappings, etc. But I have been very much dissatisfied with the locks of the wax. It was too dark in color. I studied over the matter a long while, to find out where the trouble was. I thought perhaps that I burned the wax, as the kettle was hung so the blaze from the fire came up all around the sides of it. The wax could easily be burned on the sides of the kettle above the water. I was always careful about having my fire small, and well under the kettle, to guard against burning on the sides. But, do the best I could, I think sometimes the wax got scorched some. But I found out that there was another reason why the wax was dark.

Last spring I thought I could spare some 300 lbs. of wax, and sold it to Dadant. He said to me, after he got the wax, that it could be a good deal nicer. Now, I did not like that kind of talk about my wax—not because it was not a fact, but because I did not know how to do any better; so I wrote back to Mr. Dadant for information how to go to work to make a first-class article of wax. I asked if a solar wax-extractor was what I wanted, etc. He wrote me that the solar wax-extractor was not what we wanted. He said it was too slow for the amount of work we had to do, but advised me to get a copper boiler made. He gave the dimensions of a boiler that he thought would be about right. It would cost, he said, six or eight dollars, and would last a lifetime. I went through our hardware stores to see what I could do. First, I bought a second-hand stove—a very large, flat-topped one, costing \$6.00. Then I found two sheets of tin, very heavy, and sent off for copper to make the bottom. I had a boiler made, 26x24 inches, and 22 inches deep, with a good cover. It cost \$13.00, and weighed empty, over

40 lbs. Then I built me a shanty for a wax-room, and set the stove up in there, took off all the lids, set my boiler on, put in 6 pailfuls of water, heated it, and then began to pile in the combs to melt. My! how much the thing would hold! As the first melted, I put in more until the boiler was three-fourths full of water and wax. Then I took a dipper and dipped off the wax, about 30 lbs.; then as I had about all the wax out that I could dip off, I let the fire go out, and left it until the next day to cool off, when I found a crust on top of the water about 1½ inches thick that contained considerable rubbish and dirty matter which I threw away. The top crust I put back into the boiler, to be melted with the next batch. The color of the wax was nice, a rich yellow.

One thing more I want to speak about. Mr. Dadant told me that it would be well to have a wire-cloth screen sunk into the boiler, over the old combs, to keep the impurities at the bottom of the boiler. As there are a great many light impurities that float with the wax, being nearly as light as the wax, these are the most difficult to get rid of, and I succeeded in doing away with them most readily by the use of this screen. All right; we shall have one for the next batch, and so we did. It worked well. The first time I used it the wax was nice. Then it was four or five days before I made another batch; and during that time my wire screen had got badly rusted. Not thinking of anything wrong I used the screen as it was. But when I took off the wax I found it as dark as any that I had made in the iron kettle, all caused by the rust from that screen. So I did not use it again. I intend to get some copper-wire screens to use in place of the iron, as the screen is a big help.

Now, I find that iron rust will make wax dark—in fact, black—if there is enough rust. I find it pays to make nice wax. Mr. Dadant wrote me that he would like to get hold of my wax next time, if melted according to his directions. Well, after I had got through making wax for the season I wrote him that I had nearly 200 lbs. of very nice wax. I asked him how much he would give. He answered that he had a large stock on hand, and he did not wish to buy any more at present. I then sent the wax to A. I. Root, and asked him how the quality of the wax compared with the average. He wrote me, "Your wax was a good deal better than the average, and you see we have allowed you two cents a pound extra on this account." So you see it won't take long to pay for my boiler, in the extra price of wax. It pays to make a nice article. E. FRANCE.

Platteville, Wis., Dec. 6.

[We are greatly indebted to you, friend France. Although all you tell us is not exactly new, it helps us greatly in the arrangements for working on an old plan. We have discovered, as well as yourself, that iron rust is not a good thing for rendering wax. We have also found out that nothing in the shape of galvanized iron or zinc should be used about hot wax. It will turn the wax a peculiar dark green. Copper seems to be the only metal in common use that has no effect on hot wax. Tinware, after the coat has worn off, is almost as bad as the kettle, especially if it gets very hot. I fear you will find trouble in getting wire cloth made of copper wire. You can, however, get brass strainer wire cloth of almost any tinsmith, but it is pretty fine for your purpose, and rather expensive. Perforated copper would answer nicely. But wouldn't it pay you to put the residue under your wire cloth, in a press? You know a good many claim that they get an additional quantity of wax by applying pressure when the

wax is hot. We are very glad to get information from anybody so well posted as the Dadants. Very likely it will pay bee-keepers with a number of out-apiaries to have a rig in some little shanty outdoors, for rendering wax. I am sure the women-folks will be ready to give us plenty of advice, and may be "three cheers" besides, when they see us take up our duds and move out of the kitchen, into the wax-house away off in the yard.]

MANUM ON A VISIT.

HE CALLS ON IRA BARBER.

Having promised myself the pleasure for several years of making Mr. Ira Barber, of De Kalb Junction, N. Y., a visit, as he is one of the most successful bee-keepers in the land, especially in wintering his bees in the cellar without loss, year after year, I have felt a desire to learn his method of wintering; and having received notice that a friend living a few miles from Mr. Barber was about to depart for the West, I thought it a good opportunity to "kill two birds with one stone;" therefore, on Nov. 8th I boarded the train; and after making my friend a few days' visit, on the 12th I landed at De Kalb Junction. Not having notified friend Barber on what day I would appear, of course he was not at the station waiting for me; but on inquiry I learned that he lived only two miles away; and on consulting a liveryman I found that \$1.00 was his price to take me the two miles. The price was low enough; but I decided that I could save that much by going on foot, so I started; and in 40 minutes I was standing near friend Barber's hatchway, having just seen him and two other men go into the cellar with bees. As Mr. B. came out and looked at me a moment he exclaimed, "Hello, Manum! is that you?"

"I believe that is my name, Mr. Barber, even though I am some distance from home."

"Well, boys, this is Manum, the Vermont bee-keeper, and I guess we will do no more to-day. We have the bees about half in, and we can finish them some other time. I want to visit with Manum while he stays; and, by the way, how long can you stay?"

"I must return to-morrow, sure."

"Well, you are as bad as Ernest with your short visits. Did you learn that trick of him?"

"Now, Mr. B., don't compare me with Ernest. I am not editing a bee-journal nor manufacturing supplies. I am just simply a bee-keeper, and nothing more; and, besides, were I to remain here long I fear I should be homesick without any mountains to rest my eyes upon. Why! it looks strange here to me without a mountain in sight. Surely I would not dare to travel very far alone in this country without a good guide, as there are no mountains to serve as landmarks. Why! I should think your bees would get lost if they had to go far for honey. But, as I observed while coming from the station, you have clover so very plentiful here all around you. I don't suppose your bees are obliged to go out of sight of their hives at any time. Surely I never saw clover more plentiful than you have it here."

"Yes, Manum, we have plenty of clover here, white and alsike. Those large fields there across the way are all seeded with alsike; but this year there was no honey in it, hence I have had to feed my bees sugar to winter them. I finished feeding last night."

"What! feeding so late as this, and putting them right in the cellar? I have always

thought bees should be fed early enough so they could cap over their stores."

"Well, that is the proper way, especially for outdoor wintering; but I have had no bad results from late feeding. Yet I would advise feeding a little earlier than this."

"Mr. Barber, how do you manage to feed with these single-walled Simplicity hives?"

"I feed with ten-quart milk-pans—here is one right here. There, you see I break up old comb into inch-square pieces for floats, and I put in what syrup the colony needs, and cover the syrup with the floats; then I raise up a hive, set the pan on the bottom-board—just at night—and set the hive over the pan, or, rather, the hive rests on the pan; and by the next morning the bees have taken up all the syrup; and by having pans enough I can feed pretty fast in that way. Now, Manum, my friend Charles Hallegas, who has about 100 colonies, wanted I should be sure to take you over to his place when you come; and as it is only six miles we have just about time to go and get back before dark, and I think you'd better take your camera along, as I think he will want a picture of his yard; so I will go and harness old Tom, and we will be off."

"I see you have stakes stuck down, with numbers on them, where you have removed the hives; why do you do that?"

"Those numbers correspond with the number of the hive that stood there. In the spring I set the same hive where it was this fall."

"Do you think that is necessary?"

"Yes, I do; for before I practiced it, and when I set out my bees they seemed to be lost for a day or two, there being much commotion in the yard; and some hives would get more than their share of bees, while now all is quiet after an hour or two."

"What are these machines with these great tin drays? They are something new to me."

"Well, Manum, this is where I feed in the spring. You see, I have these great boxes made with a small door at the side, where I put in a lamp, and these trays are set over to close the top, and I pour my sugar syrup into them. They hold about 10 gallons each. Then I put in these wooden plates, made by tacking together narrow strips in the form of a rack. My lamps keep the syrup warm, and the bees come here in swarms to take the feed."

"Well, but are you not feeding your neighbors' bees also, as well as bees in the woods?"

"Well, I presume so; but I find this the best way for me to feed in spring, as it stimulates breeding better than any other way of feeding that I have tried; but the feed should be very thin. Let us be off."

On the way to Mr. Hallegas' place, Mr. Barber says:

"There, Manum, you see all those fields are covered with clover; and how far should you say it is across that meadow there on the left?"

"Oh! I should say three-fourths of a mile."

"You are wild. It is all of a mile and a half, and this one on the right is all of one mile, so you see I have a large range near by."

"So I was right, Mr. Barber, when I said your bees must have plenty of forage within sight of their hives. Now, if I had such a location as this I could get rich in two years—two good seasons, I mean. How long have you kept bees, Mr. B.?"

"Since 1852. My brother and I started with four colonies in box hives; and I had since, at one time, 500 colonies, but now I have only 140."

"During these 38 years have you ever had as many poor seasons in succession as the past four or five years have been?"

"No, Manum, I never have. Two poor years running is the most; but this terrible setback does not discourage me in the least; and, don't let it discourage you, for there is surely a good time coming, and I feel very sure that next year will make us all happy. Why! just look at the growth clover has made this fall; see how rank it is; and, furthermore, next year is our basswood year. So, then, my advice to you is, be hopeful, and ready for a large honey crop."

"Well, Mr. Barber, your talk encourages me very much indeed. I had been of the same opinion; but to hear it from an old bee-keeper, one with such an extensive experience as you have had, is surely very pleasing."

"There, Manum, the next house is where Mr. Hallegas lives."

Approaching the house I saw two men standing in the yard, and I heard the older one ask, "Who is that with Barber?"

"Well, father, that is Manum that you have heard me speak of."

I jump from the carriage, and Mr. Hallegas takes me by the hand, and says:

"Well, Manum, when I met you at the convention at Albany I never expected to see you here; but I am very glad to greet you."

"You see, Mr. H., I am everywhere, like a poor season. Where are your bees?"

"Right out here, back of the house. Have you come prepared to make a picture?"

"Yes, sir, if you would like one."

"Yes, I should; but step into the honey-house here, and see my new clamp. There, what do you think of it?"

"It is a very good clamp, though quite similar to Crane's, Wright's, and several others, only yours is not complete. For me to use, I would either use a screw or wedge to hold the sections in place; and I should want a groove here and one there, and insert a tongue to rest the separators on. How many bees have you, and what are they?"

"I have 96 colonies, nearly all blacks; and I find the blacks do better in a poor season than the Italians—at least, mine do."

After a short but enjoyable visit we return where Mr. Barber serves up a fine supper. I will say here that he does his own housework, having buried his wife four years ago. He has done his own cooking since; and I assure you, Mr. Root, that the ladies are not plentiful who can outdo Mr. B. in the kitchen. The evening was spent in talking on various topics pertaining to bee-keeping, such as chaff hives, single hives, strips, and full sheets of foundation, as well as the much-talked-of thick top-bars and broad-end frames. Finally the subject of locating out-apiaries was brought up by Mr. B. asking:

"Manum, how far apart do you think out-apiaries should be located so they will not encroach on each other's territory? and do you have them all strung along in one direction, or do you locate them all around your home apiary?"

"Well, Mr. Barber, owing to the fact that there is a high range of mountains on the east of me I am obliged to locate my apiaries north-west and south; and now if you will get me a piece of paper I will make a pencil sketch of my apiaries and the surrounding country; then you can see for yourself how I am hedged in by hills and mountains."

"See here, Manum, did you know it is after 11 o'clock? It is time we were in bed. You can make your map in the morning while I cook our breakfast."

Bristol, Vt., Nov. 28.

A. E. MANUM.

(To be continued.)

ERNEST'S NOTES OF TRAVEL.

OVER THE MOUNTAINS AGAIN.

I promised, some time ago, to give you a view of O. R. Coe's hotel and mountain surroundings at Windham. In response to this, you see he has loaned me an electrotype showing his place. The engraving hardly does justice to it. In fact, no effort of man can adequately represent, on paper, mountain scenery as it is. Windham is a very pretty mountain town, free from malaria, as a matter of course. At the time of our visit, one or two parties from Florida were stopping here to get the malaria out of their systems; and it was coming out, too, with a vengeance.



O. R. COE'S MOUNTAIN HOME.

I should have been glad to spend a week at this delightful place; but I had to hurry away after I had been there a couple of days. I longed for the privilege of climbing up the mountain in the rear of the hotel. While I was there, several ladies, unbeknown to anybody, had made the climb, and, for a wonder, had got back safely without getting lost. It is hardly wise for strangers to attempt to go up the mountains unless accompanied by a guide, especially if there be no footpath or roadway. Indeed, our friend Coe, just the day before we arrived, had himself, after a residence of many years in this region, got lost on the mountains. He had taken a party of tourists up sightseeing; and after directing them to go up a familiar pathway, he himself concluded to take a short cut across through the woods. He lost his bearings, and for two or three hours he wandered about not knowing which way was north. He climbed a tall tree, looked over, and then learned where he was. On reaching the company they were much alarmed because of his long absence; and, not daring to attempt to go home without a guide, they began to feel themselves in a predicament indeed. May be they feared the bears.

THE MOUNTAIN BEARS.

Yes, there are bears on these mountains, but they are harmless, and will run from the *genus homo* before the latter can even recover his consternation. They are rarely seen except during winter, when they are kind enough to come down and carry off a sheep or a pig or two for the farmer—a kindness which the latter for some reason or other does not appreciate.

WHY BOX HIVES WILL WINTER BEES SOMETIMES WHEN FRAME HIVES WILL NOT.

Mr. Coe's honey-house and winter repository,

as well as the apiary, are in the rear, just back of the buildings, and therefore they do not show in the picture. You will remember that this is the apiary where the bees die every winter, although box-hive bee-keepers all round about are successful in wintering. Mr. H. B. Harrington, otherwise known as "Neighbor H.," told me he thought he could solve the trouble. Said he, "In box hives you will notice that the combs always radiate from a common center, something like the spokes of a wheel; and there is a central passageway through the mass. In this opening the bees cluster and radiate from the center to the outer edges of the hives, as they run short of stores. In the movable-frame hive, the modern bee-keeper spoils all this; and in Mr. Coe's case the bees were

obliged to pass up and over the combs, and consequently the bees in box hives would survive while those in his modern hives would die."

This same matter has been brought up before, I believe. I am glad to give it here, as it suggests a very probable cause of Mr. Coe's winter troubles. I myself have never dissected box hives enough to know just how combs are built; but Mr. Coe can tell if this be true. My impression is that they are built just about as Mr. H. says.

A VISIT TO THE DADANTS.

Well, now, I am going to jump from the eastern part of York State clear over to the valley of the Mississippi, and I can do it on paper, I am happy to say, in a good deal less time than I can do it wheeling it across the real territory.

At the close of the convention at Keokuk, we were invited by the business men to ride over and visit the Dadants, ample conveyances being provided for the occasion. We crossed the immense railroad bridge at this point, something over—I don't dare tell now; and after crossing we reached the suburbs of Hamilton, a town of 1500 inhabitants. The peculiarity of it is, that it is a very long town. I think you can ride on one road for a couple of miles without getting out of its suburbs. After a very pleasant drive over beautiful roads we finally reached the home of the Dadants. At several points along the route I wished for the Kodak, which I did not have on this trip. With this little instrument I could have shown you a line extending perhaps a mile long (it might have been only half that), of teams carrying bee-keepers to the largest foundation-factory in the world.

On arriving at the Dadants' we hopped out and were freely invited to go anywhere and

everywhere we pleased. Mr. C. P. Dadant told me that they had no "secrets;" and although I believe I represented their most formidable rival in a business way, he very freely and kindly showed me all their kinks of the trade; and before I forget it I want to say they have got the business down to a fine art and a most perfect system. Every operation or method seems to have been wrought out by careful study, both as to economy of time and labor—a condition in which employes and employers are interested.

When we went into the shops the workmen (a nice set of people they were) were turning out foundation in full blast. They are paid so much a day; and then, as an additional stimulus, they are given a bonus on the amount of foundation they turn out; that is, they work on the co-operative plan. This is so arranged that it is to the interest of the employes to turn out not only *quantity* but *quality*. Although the men worked rapidly, yet there was painstaking care exercised through it all. If there was a doubt as to whether a sheet would be suitable, it was cast into the waste, to be remelted and made anew; and I do not much wonder that every inch of the Dadants' foundation is equal to the sample sent out. I was surprised, however, to see that they should turn their mills by hand power, when steam is so much more expeditious. But then, for all that they manage to turn out 80 tons a year.

The rooms were crowded with bee-keepers, to witness all the different operations. In one corner I noticed quite a circle of people; and peering over their shoulders I noticed that a couple of Mr. C. P. Dadant's little girls were what we call "papering" foundation; that is, they were putting a sheet of paper between the sheets of wax. I took out my Waterbury and began to time them, for their hands moved so rapidly it was a difficult matter to follow their movements. If my memory serves me rightly, they papered about forty sheets a minute; and if a big crowd had not been looking on, they might have averaged a sheet a second. These two do not do this during the busy rush, but they *know how*.

After we had wandered all through the different apartments we were invited to the honey-house, and there took lunch, after which quite a number of us could not refrain from going out and looking at those large Dadant hives. No doubt for their locality, and for extracted honey, these big hives are decidedly an advantage, and it would be hard to conclude otherwise, in view of the tons of honey obtained.

As it was beginning to be train time, the teams were commencing to load, and off the long train of conveyances started. It was my pleasure to be of the party with C. P. Dadant. Just before getting into the buggy, an old negro brought the horses and hitched them in. I could not help noting in particular the frank, honest look on his face. He seemed to know of the different bee-keepers, and Mr. Dadant introduced him to me as "John." He has been with them a good many years, and is one of those faithful, trusty employes whom it is a pleasure to have. After Dr. Miller and I got into the buggy, the venerable Charles Dadant (and it's a genuine pleasure to look into his genial face) came forward and pressed us hard to stay over; nothing would have furnished me more enjoyment personally; but as usual I had to make time.

He is indeed one of the veterans in the business; and now at an advanced age (73) he seems to retain all his bodily vigor and strength of mind. We finally bade our old friend good-by and started off for Keokuk, where we all took our several ways.

QUEEN-REARING.

DR. MILLER TELLS HIS EXPERIENCE WITH THE DOOLITTLE AND ALLEY METHODS.

I tried Doolittle's artificial cups for queen-cells last summer. I made perhaps 200 of them. I tried to follow his instructions to the very letter; but after leaving them in the care of the bees for 24 hours my spirits were saddened to find the bees had emptied every cup and cleaned it out bone dry. There were a few exceptions in which the grubs were kept a day or two, but only two that continued to maturity. These two were, I thought, the nicest I ever saw—the cells so perfect, so easily detached, no daubing in cutting them out, no extra comb about the base. I'd like to know what the trouble was. Possibly the very poor season had something to do with my failures.

With the Alley plan I had less trouble; but even with that there were more failures than in former years. A great advantage of the Alley or Doolittle plan over that of simply taking away a queen and letting the bees have all the brood to start queen-cells, is that you know something about, and have some control over, the grubs used. With several frames from which to select, the bees *may* use larvae too old to make good queens. Still, I must say that my own experience in this respect hardly corresponds with the impressions I had gained from reading. As a general rule, where a queen has been taken away and the bees left to their own devices, no queen has hatched until 12 days after the queen's removal—in some cases 11 days after, and in rare cases 10 days after. I don't like, however, to run the risk of these rare cases, and there is another factor which enters into the problem. Suppose a queen hatches 12 days after the old queen's removal; are we sure that the bees started the queen-cell just 4 days after the egg was laid—in other words, just as soon as the queen was removed? You see, they may not have discovered their queenlessness for some little time. At any rate, if they have brood in all stages you don't *know* what they're using.

With the Doolittle cups you may know to the hour just how old your grubs are, if you get the bees to respect them. With the Alley plan you can also know to the hour the age of the grubs given. Suppose at noon, on Monday, you give to your best queen a brood-comb without eggs or brood where you think she will lay in it. On Friday, at noon, take away that comb and you know to a certainty that there is nothing in it older than four days from the laying of the egg. Take some of it and use it for starting cells on the Alley plan, and you may look for queens to hatch in 12 days. What chance can there be for failure?

Well, by that plan I have raised some of the finest queens, and also a few of the very poorest. Suppose that the bees start cells as soon as the material is given them, and that all are of the same age, I should expect very few poor queens. But queenless bees do not always start all the cells into queen-cells as soon as given. Some of the grubs are likely to be continued as workers for two, three, or four days. Then, having got their queen-cells fairly under headway, they conclude they want to start some more; and if they have nothing but grubs four days old—or seven days from the laying of the egg—these will be used. So they may use grubs so old that there is not time to feed them up into good queens.

A remedy in this case lies in destroying all grubs that are not started as queens within 24 hours, perhaps giving younger brood in their places.

I feel sure of good cells if they are started in strong colonies; but after the cell is sealed, is it any better off in a strong colony than in a nucleus, *if* it is kept just as warm in the nucleus? There may be a difference. At any rate, I look for a queen to lay a little sooner in a full colony.

If, however, two nuclei be in a double hive, and a thin partition between them, I do not see why a queen may not be raised just as well in either as if the partition were taken away and the two thrown into one. And if that partition is no detriment, may not more than one partition or division-board be used without hurt, thus increasing the number of nuclei in the hive?

GETTING RID OF LAYING WORKERS.

Very often it isn't worth while to fuss much with a colony having laying workers. It's likely to be a weak thing at best, the bees mostly old; and if honey is yielding well, I've had no trouble in distributing the combs and bees to colonies needing them.

Lately I have found a way to get rid of laying workers in a very easy manner. I take a young queen just hatched, or one that I have just pulled out of a cell; drop her right among the bees, and in the usual course of time I find her laying, and the laying-worker business is stopped. I have not had a single failure; but I have not tried enough cases to say that it will always succeed. C. C. MILLER.

Marengo, Ill., Dec. 6.

[Friend M., your italic *if*, when speaking about putting cells in a nucleus or in a strong colony, is just where the point is, especially if you have cells started very early in the spring. The nucleus may seem all-sufficient to cover and keep the cell warm, until a heavy frost or a cold storm comes along. Then I think the queen is oftentimes injured by the cell being chilled or partly chilled. I am sure your plan of getting rid of fertile workers will not always work. When we first got our queens hatched in the lamp-nursery, we fondly hoped that it would help us to get rid of fertile workers. But on several occasions we saw the bees cling to their fertile-worker queen, and refuse to acknowledge the one newly hatched. She would get out around the entrance and "go dead," sooner or later.]

HOW TO BE YOUR OWN CARPENTER AND JOINER.

SOME PRACTICAL HINTS TO THE YOUNG WOOD-WORKER.

The above sounds something like the title of a book, does it not? Well, I am not going to write a book on carpentry and joinery—just yet, at least, although I have often thought that I should like to do it. Several things have reminded me of the importance of such a work just lately. By the way, did you ever have a carpenter or a joiner work for you? and did you ever feel disgusted because he took a great amount of time, and made a botch of his work after all? If you have not, perhaps your *wife* has had some such experience. Yes, very likely you have at some time in your life tried your own hand at carpentry; and may be your wife has tried the same thing. Perhaps you have *felt* your own helplessness in so doing. Well, I have passed through these experiences again and again. In later years I have had a good deal of experience in hiring carpenters and joiners, and wood-workers generally; and I have been many times greatly disappointed to find that experienced wood-workers, many of them,

had never learned common-sense short cuts, or little "tricks of the trade," that enable one to make very pretty-looking work, oftentimes, without very much time or expense being required. I have so often felt this, that it occurs to me that I should like to give a few simple hints to those who like to do their own carpentry.

In the first place, you need some tools, although not very many, for most ordinary jobs. These tools need not be very expensive, nor very elaborate; but they must be in good working order. In fact, you must *keep* them in good working order; and you must learn better than to run your saw or plane against nails. Do not be guilty of *such* blunders, whatever you do. In the first place, you want a good pocket-knife, and you want to keep it perfectly sharp. How many of the hundreds I have working for me, do you suppose, have a sharp knife in their pockets, whenever I tell them what is wanted? Why, lots of great big men and tolerable workmen do not have any knife at all. Others have a knife that is so dull it is almost as good as none. If you find your knife dull when you are in a hurry, and no whetstone is near, go to the nearest stone you can find, of any sort. I sometimes sit down on the doorstep and give a knife or other tool a rough sort of sharpening that will make it take hold of certain kinds of work even better than a fine smooth edge. Even garden tools can be greatly improved, often, in a very few minutes, by sharpening on the nearest sandstone. A good many say they can never *keep* a knife. Why, my friend, you ought to be ashamed of yourself. If you can't do any better, do as I do. Put a ten-cent knife in each pocket. If you lose one you will have another; or if you lend one you will have another. After your pocket-knife you want a saw, or, rather, two saws. Almost any sort of saw will answer if you keep it in order, or away from nails or gritty lumber. Then you want a good hammer and a good assortment of nails. Be sure you do not spoil what might otherwise be a good job by driving a big awkward nail into a light piece of wood. When you get a hammer that suits you, with a good assortment of nails, you want to practice until you can drive a nail exactly where you want it. If the nail is right, and the hammer is right, and the man a hold of the *handle* is right, the nail can be made to go within a hair's breadth of where it ought to go. You also want to learn by experience (by looking at the nail and looking at your work) when there will be a liability of splitting. I can endure almost any thing better than boards split up by unskillful nailing. If there is any doubt about it, have a brad-awl handy, and make a path for your nail so it *must* go right. A great many times, screws and a screw-driver must take the place of nails. You also want a good sharp hatchet, to be kept sharp like the saw; a chisel or two, and a couple of planes. In these days, when mechanics handle nothing but planed lumber, it is very seldom that there is any need of planing rough boards by hand. Still, you want a smooth-plane and a jack-plane. Then you want a try-square, a carpenter's square, and a bevel square. The two former must be accurate. If they are not so when you buy them you must file them until they are accurate. See directions in the A B C book. Then you want a sharp lead-pencil in each pocket. For very accurate work, use the point of your knife instead of a pencil. Learn by practice until you can saw so close to the mark made by the point of your knife that the path of the saw is just level with the knife-cut, after your board is cut off. Never saw a board off without a mark made with your try-square. Lay the try-square on the *edge* of the board, so as to have it square

both ways. Always plane the edges of your board, and lay on your try-square to see that they are planed squarely. When carpenters put up shelves or other work, leaving the rough edges of the boards unplanned, it vexes me exceedingly. You can do a rough job quicker with planed boards and planed edges than you can cut and slash without rule or pencil, simply because you are in a hurry. Haste not only makes *waste* in carpentry, but you will find that "lazy folks" oftentimes "take the most pains" eventually.

Where you are to hitch on to other work, some judgment and discretion are necessary; but as a rule I would make the new work level and plumb. Keep constantly by you a plumb and spirit-level; and when you put up a shelf, doorstep, or any thing else, that is supposed to be level, make it absolutely level—level north and south, and level east and west; and if any thing is supposed to be perpendicular, have it absolutely so, putting the plumb on both sides. Few carpenters will take the pains to do this. Many accidents, and much loss of life, even, have occurred by having steps awkwardly put up. If what you do is put up square and level, you will have the satisfaction of knowing that your work is right so far as you have gone; and if at any future time other work is to be added or attached to it, it will be plain, clear sailing.

Do not go to cutting up your lumber until you know exactly what you want and what you are going to do. Whenever I set a new carpenter at work it is always interesting to me to watch him, and see if he will not take more time in remedying blunders than he does in doing the work. A man who can go straight ahead, without balk or blunder, will accomplish a surprising amount of work in a day. But men who can do this are very scarce. This is why it often pays to employ a competent architect, and give him five per cent of the whole amount of money invested, when the job is of any magnitude. It is his business to lay the work out so it can be pushed along rapidly by ordinary mechanics, without running into any snags.

Have your lumber all dressed to an even thickness. Insist on this at the planing-mill; that is, have all your inch boards dressed to the usual $\frac{3}{8}$; and have your two-inch stuff also dressed to an even thickness. If you are using scantling, have them all sawed or dressed so all are alike. It will pay you to have it done before you commence. When your lumber is all on the spot, sort it or classify it so you know just what you have. Before cutting, decide what lumber is to be used to the best advantage for a certain place. Never cut off a board or stick until it must be cut off. Over and over again, men will go to work and saw off a stick when there is no need of sawing it off at all, and then discover that they made it too short, or spoiled it for the work intended; and then there is some botch-work in splicing it. A great many times the stick or board can be put in place, or nearly in place, before it is cut at all. Cut one end, if it must be cut, and then take your stick or board and nail it in place temporarily, leaving the nails projecting so they can be drawn with a claw-hammer. Almost every carpenter I get hold of will nail things in fast, driving the nails clear down, and then discover that the board has to come off again. He will say that he can get it off again without splitting the board; but the board is split, and made ungainly-looking, if not spoiled, before he gets through.

"How many carpenters pound their work all up with their hammer, by pounding a nail after it has gone clear home! One of the first lessons my father taught me was to avoid pounding up nice soft lumber. Strike your last blows so the

nail is down level, without leaving a single hammer-mark.

Sometimes, when you are undecided just how things are going to come out, you can put your work almost all in place by means of nails driven part way in; then if a change is to be made, it can be made easily and nicely. After every thing is in place, just as you want it, and it all looks right, *then* drive the nails home to their places.

Do not measure with a rule or square, and then go and cut your stuff, saying it is so many feet and so many inches long. Why, I have seen a great pile of lumber all cut up wrong, because somebody made a mistake of a quarter or half an inch. Instead of using the square or rule, have some light strips of wood. Lay a strip on the place to be measured, and mark it with your pencil, or cut a notch with your knife.

Do not think of going to work without a ten-foot pole. When you get it all cut up or marked up, take your plane, plane it off, and mark it over again.

In taking dimensions, where you can not get a stick or pole in handy, say in getting the distance between two walls which are four or five feet apart, take two strips, say two pieces of lath. Lay them against each other, and slide one along the other until it touches the opposite wall. Now drive a nail through them, or, better, two nails, and you have the exact distance. It is taken quickly, and there can be no possibility of a mistake. If those who have worked for me, had, in taking dimensions in years past, done this, it would have saved me hundreds of dollars. Where somebody takes a rule or square, and measures, and then says it is so many feet and so many inches, it seems as if such a one *always* makes a mistake, especially when I am around. Oftentimes the dimensions are given to somebody else, and the second man does not understand.

If you are sending for a pane of glass to fit some place, give the boy two sticks to take to the hardware store. Tell him the glass is to be as wide as one stick, and as long as the other; and if you cut your sticks exactly right, your glass will be exact, and the same way in taking the dimensions of any thing. It is quicker, and absolutely safe. Many mechanics seem to think cutting things wrong, and sending boys for the wrong thing, should be counted on as a matter of course in every day's program.

Do not be in haste to saw off every thing. Many times people waste their time and strength in sawing off sticks or boards that do not need to be sawed off at all. They do it on the same principle that the girls did who were wasting their time in scraping and peeling labels from some glass jars. When I asked them why they wished to get the labels off, they said they wanted to put on some new, fresh-looking ones.

"Well," said I, "why not put the new labels right over the old ones, letting them be where they are?"

Nobody could answer or give any reason, and yet they were consuming valuable time.

A great part of carpenter work is simply to please the eye. It does not matter how your boards look where the work conceals it. By the skillful use of cheap slender molding you may make a botched job look artistic. Let the molding cover the joints and general unsightliness. I saw a very pretty ceiling, made of boards one foot wide, dressed on one side. These boards were not even sawed off at the ends, and the cracks between them were, some of them, an inch wide; yet strips of molding, put on skillfully, covered all the cracks and joints, and divided the ceiling into pretty oblong squares.

THAT DARK HONEY FROM ARIZONA.

PEACE AND GOOD WILL COMING OUT OF SOME OF OUR TROUBLES.

Perhaps every reader of GLEANINGS took a deep interest in Our Neighbors in our issue for Dec. 1; and I am very glad to see that all parties concerned have taken hold with a will to straighten up, so far as may be, the damage done by letting honey go out on the market labeled as a better grade than it really ought to have been. The first letter comes from the brother who inspected the honey when it was loaded on the car.

Dear Brother:—I call you "brother" because I think you are a brother in Christ, from the acquaintance I have had with you through GLEANINGS. I do not know when I have felt as bad as I did last night when I read in GLEANINGS of Dec. 1 about the honey that G. B. Shelton received from you that came from Phoenix, Arizona. I can't see how there could be any honey in the car like that represented by Mr. S. I am inspector of the Bee-keepers' Association of Salt Run Valley, and I tried to be honest in the matter; for if there is any thing that I do love it is justice. This is a great honey-producing country, and we have more honey than the local market demands; and we are compelled to find a market in the East for our honey, and it behooves us to sell it only as represented, if only from a business standpoint, leaving out the honesty and justice of the matter.

We load a car in two days when we ship. All the bee-keepers of Phoenix load the first day, and then the car is run to Tempe and finished up. I take off the screw cap on the can, and examine the honey as to flavor and color. I use a pocket-knife with a blade about three inches long. I had others, who would not be interested in the person's honey that I was inspecting, examine the honey as to color and flavor. I confess that I did not look at every can; but when I looked at most of the honey, if it was of a uniform grade I would ask the party whether the lot was of the same extracting, and he would answer yes. Then I would grade it 1, 2, or 3, as the case might be. I fought against any honey being shipped in *old cans*, but was ruled out for this year.

If the cans were badly rusted inside it would make the honey darker, and give it a bad flavor, if it had become granulated and was melted in the can. Some one of the shippers may have been mean enough to put bad honey in the bottom and good on top; but I trust not. I want you to find out, if you can, whom the honey belonged to, and let the association know all about it.

W. L. OSBORN.

Phoenix, A. T., Dec. 15.

Here is another, written in an equally kind and fair spirit, from our friend Shelton, who is, perhaps, the principal sufferer:

Dear Friend:—Your very kind letter of the 12th inst., requesting me to make out my bill for damages, was received in due time, and I should have answered sooner, but I have been very busy. Now, my kind friend, I do not see how I can make out a bill for the damages on this dark honey, for I can not tell just what my actual loss is. I do know, however, that I care very much more for the injury done my reputation in the honey-business than I do for the actual loss in money. I will try to make all satisfactory with the men I sold the honey to, but I feel sure that I shall never be able to fully satisfy them and regain their confidence.

I must in turn thank you for your very kind and Christianlike letter, and I do try to be,

and hope that I am, worthy to be called your brother in Christian love.

Brownsville, Pa., Dec. 22. G. B. SHELTON.

The following is from the corresponding secretary of the association in Arizona:

Friend Root:—I have been a reader of GLEANINGS for three years, and have not written a line intended for publication in its pages; but now the time has come for me to have my say, which will be principally in defense of Arizona honey, and of the Bee-keepers' Association of Maricopa County. I have read a short letter written by you to our recording secretary, after the receipt of the second car of honey from us. I have read carefully, *three times*, your sermon in GLEANINGS of Dec. 1st—to be sure that I comprehended fully the gist of the matter there set forth. I am free to say that I consider that sermon one of your best, in the way it connects religion with business, and pleads for fair treatment of customers in trade. I think I can comprehend why you should seem to write under a fit of "the blues," after receiving those discouraging letters from G. B. Shelton and the firm at Cleveland, O. When a man's honor is at stake, it is something to be worried about. I must confess that I have felt some satisfaction in the reflection that "misfortune loves company." I knew you were having some trouble with the first car of honey from Arizona; and when I learned that you had received a whole car of comb honey from one man, friend Ball, of Nevada, I thought to myself, "Now Bro. Root will have clear sailing. This car is uniformly of even grade and high quality, and it will go off without trouble, at a high price, and the buyer will be well pleased with his goods."

Imagine my surprise to find that some of *friend Ball's* goods were rejected and returned, which goes to show that some of us who are compelled to combine for shipment, in order to get our honey on to the market, do not have *all* the trouble that comes from dissatisfied customers.

I must say, too, that, when I read your sermon the *first* time, I thought, "Bro. Root is wrong in making public through GLEANINGS that which could have been better settled by private correspondence." I conclude that you thought it well to give the matter a thorough ventilation for the good of the shippers in particular, and the honey-trade in general. If so, the thing is *out*, we are all *in* for it, and here goes.

In the first place, no complaint can lie against the Arizona shippers of comb honey in either car on the ground of willful dishonesty in putting the white sections on the outside to show off, while the dark were put in the middle of the crate. No glass crates have been used. We had to use such crates as we could make or get made here, without glass. If any mistake was made it came from imperfect grading *without* intent to defraud. There was no inspection by our association inspector. Each man crated his honey to suit himself as to his own notions of what would best suit the case, expecting the honey would be sold on its merits. Some shippers in the last car marked their crates with "light" and "dark," as an indication to A. I. Root's men where they might look for the lightest honey and where for the darker shades, expecting, however, that such care would be taken at your end of the line as would enable you to know just what kind of honey you were sending to a customer. I am quite sure that I said in my letter accompanying the invoice of the last car, that we expected the honey to go on its merits, and any expense necessary to put the honey on the market in a fair and square way would be cheerfully borne by the shipper; and I

say now again, grade, assort, inspect, and sample at *our expense*, sufficiently to give every buyer as nearly what he buys and pays for as human diligence can provide.

In regard to extracted honey, I am free to say that I believe no one of our shippers attempted any fraud or sharp practice on anybody. Every thing was left to the inspector to grade according to his best judgment. One customer says our inspector must have "an elastic conscience." In defense of W. L. Osborn, I want to say that those who best know him will, to a man, resent this charge. I believe there is not a more honest or conscientious man in Maricopa County. He desires to do the square thing every time.

Furthermore, we do not claim that the inspection was faultless. We admit its defects. It is quite impossible to examine 500 cans of honey from 20 different shippers, and pass upon its merits as to color and flavor, critically: load and invoice it in one day, the inspection to be made by one man. Yet this is what we attempted to do. Of course, there was force enough at hand to do the nailing, handling, and marking; but the rub comes in on the *tasting*, to determine flavor. I know of no way of determining flavor except by tasting. By the time a man has tasted honey two or three hours his tongue becomes so demoralized that all samples taste alike.

It is not necessary to go into details further as to what might happen and possibly did happen between the carelessness of the shipper on the one hand and the exacting demands made upon the inspector on the other. Suffice it to say, that every can went from here with the inspector's certificate pasted upon it, which was supposed to show what kind and grade of honey it contained. Most of it went as first-class, some second, some third.

Now let us come to the real gist of this honey trouble. We desire to know whether Bro. Shelton really got that bad honey that he complains of out of the first carload from Arizona. If he ordered honey by sample, why did he not get that which was as good as the sample? Furthermore, we want to know whose honey Mr. Shelton got, if it came out of our carload. We want to know whose honey it was that created adverse criticism from *other* customers, if any. This thing should be fathomed to the bottom. If you kept track on your shipping-book, of the marks on the cases as they were sent out, you can, by comparing with the invoice sent from here, determine the name of the owner. We have a copy here which can be used in an emergency. Follow it up and report. We desire it for two reasons. One is, to do equity in case any one has been wronged to the advantage of the shipper; secondly, to teach a lesson to him who has erred, for the benefit of his future work as a bee-keeper.

And now as to the future. Our bee-keepers' association has come to stay. We can not afford to do without it. Owing to our situation we are compelled to market our surplus product in carload lots. Not many of us are large enough producers to load a car alone; but by combining we can ship out of this valley several carloads during the season. If there are defects and objections in our plan, we propose to go to work to overcome them so far as human ingenuity can avail. In one letter some time ago you said we could succeed best to market our goods through commission houses in large cities, where the buyers could inspect personally the goods they bought. While there may be some force in this point, I will say that we desire to encourage and foster that kind of trade made by samples. We believe it can be done to the satisfaction of both buyer and seller, in most cases. At our bee-keepers' meeting

on Saturday I said that our association had now reached a critical point in its history. We commenced shipping late this year, under somewhat difficult conditions. We did the best we could, learned some lessons, struck some snags, and are now getting the ebb from the first tide of success. I made the point, that it would prove to be wise to commence now and lay plans for our work for the year 1891. The subject was referred to our board of five directors, to be assisted by an advisory committee of three from stockholders. The committee will get to work soon and do their level best to lay plans for the benefit of our members, and for the consumers of Arizona honey everywhere. I can not suggest all that will be done, but will indicate something which I believe will be as follows: Require the universal use of new cans, each can to have upon it the name of the shipper or producer; also the inspector's certificate, stating kind and grade; similar marking as to kind of honey on the outside of the case; stencils to be used for marking cases and crates; comb honey to be marked with producer's name, and probably graded as to color, etc. Neatness of package, care in straining honey, accuracy of weight of extracted honey, notation on crates of gross, tare, and net weight of comb honey will be insisted on; also some plan for promoting more thorough inspection.

Any suggestions from A. I. Root will be gladly received. J. H. BROOMELL, COR. SEC.
Phoenix, Arizona, Dec., 1890.

[Many thanks, dear friends, for your fair, kind, and frank letters. There certainly can be no trouble in adjusting every thing pleasantly where a disposition of this kind is shown. We did have the name of the producer on the label of those cans; but perhaps we have had publicity enough so that all may see the lesson that it so plainly teaches. Light-colored honey is almost always pleasant-flavored honey, unless there is something so extraordinary as to give it a bad taste; and I fear these rusty second-hand oil-cans may have something to do with it. The trouble is, somebody will let a can go that has not been perfectly freed from the taint of oil. There is a difficulty, as we have found here, in tasting such a large number of samples of honey; but I do not believe it is necessary to taste it *all*. If poured into a little vial, or even into a saucer, the color and transparency will show pretty plainly the quality; and if the honey is nearly all good, when a sample of bad taste shall present itself it will be readily thrown out. The white-sage honey from California is so perfectly alike all through that there is no need of tasting or sampling. You may take any can you choose, and it is exactly like the rest of the carload. This is certainly a great advantage when such a state of affairs can be secured, and I do not know why alfalfa honey should not run as regular—that is, if a locality can be found where nothing else is mixed with it.

Here is something further in regard to the matter:]

IS ALFALFA HONEY EVER DARK.

Friend Root:—I notice that F. A. Salisbury, page 895, speaks of having received some of that dark extracted *alfalfa* honey, and you speak of it in your foot-notes in the same way. Now, I wish to say that there is no dark extracted alfalfa honey. While it is possible for it to become dark in appearance while in the comb, if left on the hive too long, when extracted, if gathered from alfalfa, it is bound to be white. You might just as well say, "dark white-clover honey." We who are producing alfalfa honey want to get it so understood, that,

when we offer alfalfa honey, we mean *white* honey, as it invariably is. There is no danger of real alfalfa honey being called New Orleans molasses. You might call it "partly" alfalfa, or mixed, as it surely is, if dark. Any one acquainted with it would understand what dark alfalfa extracted is, but the majority would not.

CHARLES ADAMS.

Greeley, Col., Dec. 22.

[Friend A., I think you are right. The pure extracted alfalfa we have had is just as white as any white-clover honey, and just as uniform. The problem seems to be, then, to avoid having the bees gather honey from other sources that may get mixed with it. We conclude this subject with a letter from friend Ball in regard to the honey that showed best on the outside.]

Mr. Root:—I see in GLEANINGS there has been some complaint about some of the honey you got from me being poor—dark in the middle of the cases, and white outside. Now, Mr. Root, I don't know what to say about this, as you say sometimes. There were a few sections that looked yellow, caused by leaving on the hive too long; and I should have put them by themselves; but I find people sometimes that prefer the yellow cappings to the white. I never could see any difference in the honey. I packed but very little of my honey myself, but I charged the ones who did, to be very careful and not put in anything that was not nice. Mr. Root, if you have lost by any of my honey, please let me know, and I will try to make it all right. I shall be more careful about assorting and packing my honey after this.

W. K. BALL.

Reno, Nev., Dec. 23.

[Many thanks, friend B., for your kind offer. With such a proposition we certainly can have nothing to complain of. I know, as you say, that the stained or yellow sections are just as nice honey, and may be a little better, than the white ones; but there are many retailers who would not accept honey if they found the white sections on the outside and the dark or stained ones inside.]

CLOSE SPACING.

MORE BROOD AND REGULAR COMBS; FIXED DISTANCES.

I wish to add a word on close spacing and fixed distances, as these I regard as very important matters, and they have been my hobby for a number of years. It is folly to use frames hanging hap-hazard, and hand spacing is a sort of guessing at one of the most needed parts of correct bee-keeping. We may space frames ever so nice at the top, but the bottom is sure to be out of true, and a frame can not be made so but it will warp and twist. If there is more weight of honey or brood on one side it will vary the frame $\frac{1}{4}$ inch. It has long been my belief that we all must come to fixed frames.

You may end up a hive of hanging frames enough to see the bottom-bars below, and you will see them all distances apart (except what are close together).

One cause for so many drones is those wide gaps; and I feel very sure the cause of bare spots of no brood is caused by two combs so close that the queen can not get there. I have seen a fourth of an L. frame without honey or brood, and the cell not more than half depth; and I am very sure that if they had been spaced and fixed at $\frac{3}{8}$ apart, there would have been no such trouble. These shallow cells may be

caused by being cut off too close; and if a comb is crooked they should be pressed back into place before shaving off for close spacing.

Three years ago I made a number of stays of wood, half the length of, and as wide as the end-bar, and $\frac{3}{16}$ thick. These I tacked on to the side of the upper half of the end-bars, which made a nice stay; and as I had used a number of hives with $\frac{3}{8}$ spacing, and was so sure it was the best distance, I found those all I could ask. All the now hanging frames can be easily made exact, and it seems to me there should be no stay on the top-bar, as there is no need of it, and it means so much more gum and crushed bees. It is very important that the frames be wedged at each end; that is, on the outside of all, for they all are twisted more or less, and all the little openings will soon be filled with propolis, and nice even spacing is out of the question. In fact, there is need of scraping the edges of the stayed frames once in a while.

You speak of a follower, to be wedged up. To be sure, they have some good features, yet are quite a trouble. If there is much space back of it, if the bees can get there they will, and they are quite apt to find a way there. If a case happens a little out of place, down goes a lot of bees to play the loafer (I know, for I've had the same thing).

If there is a good $\frac{3}{8}$ allowed at the outside, and the combs are kept shaved down, or, rather, shaved to start with, and stayed only half way down, there is not much trouble in getting out the first comb. It seems to me not enough to take the place of a follower. I am satisfied there shouldn't be over $\frac{3}{8}$ space between combs, and a little less between the bottom of the frames and bottom of the hive; and for losing no bee time there should be only $\frac{3}{8}$ at the end of the frames. More space than the little bee can reach across is loss to their valuable time, and just so much to us. Don't you remember, friend R., of cutting out chunks of honey from box hives, and what a narrow passage there was between them—yes, less than $\frac{3}{8}$ —with the honey sometimes 3 inches thick?

I would say to those who never use fixed distances and $\frac{3}{8}$ spacing, just try one hive; and when you get the combs shaved down and all in order, see what sheets of brood you will have, and how the honey will go (upstairs), and, too, where you used ten combs seven or eight will suffice.

E. P. CHURCHILL.

Hallowell, Me., Dec. 25.

[You have given us some excellent reasons for close spacing; but $\frac{3}{8}$ inch between comb surfaces—isn't that rather close? Why, that is only $1\frac{1}{4}$ inches from center to center. At the National Association, Dr. A. B. Mason and some one else argued for that spacing, if the spaces were exact. But the majority seem to prefer $1\frac{3}{4}$ inch. Your spacers amount virtually to a modified Hoffman frame, or the same as was suggested by J. F. McIntyre. See GLEANINGS, page 780, last year.]

MIGRATORY BEE-KEEPING.

43 COLONIES GIVE AN AVERAGE OF 47 LBS. PER COLONY IN ONLY 8 DAYS.

Friend Root:—This is a subject that is certainly worthy of the consideration of that portion of our bee-keeping brethren who are not so favorably situated as to reap the benefit of both summer and fall harvest. Situated as I am, on the verge of large areas of land subject to over-

flow from the Illinois River, thereby rendering it useless for agricultural purposes, and a large per cent of the territory a swampy waste, yet it never fails in the fall of the year to yield up a world of bloom, and hundreds of acres become as yellow as gold, chief among which is the golden coreopsis; and it is here that I have become conscious of the fact that tons and probably hundreds of tons of honey of the very best quality are "lost upon the desert air" for the want of enterprising bee-keepers who will accept of the golden opportunity and place their bees where they will gather and store the precious nectar; and I will just state, that the "golden coreopsis," or Spanish needle, stands at the head of all the honey-producing plants with which I have had any experience. It is not only the richest in nectar, but the quality is *par excellence*, and sells in my home market equal to, if not better, than clover honey. Its weight is fully 12 lbs. to the gallon, and it seems to need little if any curing by the bees when gathered. I have never yet seen any crude or unripe Spanish-needle honey, notwithstanding I have extracted it from the same supers three times in two weeks, and on one occasion twice in five and six days. One colony netted 73 lbs. in 5 days, and the apiary of 43 producing colonies, in 8 day, produced 2033 lbs., being upward of 47 lbs. per colony; and this is not true of that particular year only, but it has proven the surest honey-producing plant we have in this locality. Nothing short of cold rainy weather will spoil the harvest from this plant. But to return.

Having occasion to establish out-apiaries I found it impossible to locate them so as to get the benefit of both clover and coreopsis range, and it was no pleasant feature in the trade to see my home apiary outstrip the apiaries isolated from the reach of the coreopsis 2 lbs. to one, if not more, when there were thousands of acres as yellow as gold, and tons of honey going to waste. This seemed to me to be not in keeping with a progressive age; and I reasoned that, could I but successfully move my bees at the close of the clover harvest into the region of the fall-blooming plants, I certainly would add a new impetus to the business, and make the trade more lucrative.

I communicated my ideas to some of my bee-keeping friends, and received cold comfort indeed. "It is a practical impossibility," said one bee-keeper of no light reputation; "and you will be but too glad to give up the undertaking, should your experience be any thing like ours," he further added. Some three or four years have elapsed since this conversation, and I now stand ready to prove that the moving of bees at any time in the year is a practical possibility.

In vindication of the above I will state that I have moved from 100 to 190 colonies from one to eleven miles, twice and three times a year, for the last three years, without the loss of one single colony from the transit. Four years ago I lost 13 of my best colonies, which gave me a pointer that led to my complete success. It is indeed an evil wind that blows no man good, you know; and should your many readers be interested in this subject I may give you my *modus operandi* in a future letter.

Spring, Ill., Dec. 24. J. M. HAMBAUGH.

[Friend H., we are exceedingly obliged to you for the facts you give us above. I have thought of it a good deal since our talk with you on the cars when we were at Keokuk. Your suggestion just now comes like an oasis in the desert, for it indicates that we need not go to Arizona, nor California either, to find undeveloped fields for the apiarist. By all means give us the further particulars.]

A NEW IDEA.

GIVING BEES A FLY IN A WIRE-CLOTH CAGE IN THE WINTER TIME.

Being an apiarian, a subscriber, and a correspondent of the bee-journals, I would suggest that, for the advancement and general progress of bee culture, there ought to be a premium offered of small amount, say \$500 or \$1000, to any one who would present a new idea upon this subject. You see, I am of quite an inventive turn, and want to be among the "premium-seekers." However, I am very liberal, and I presume I want to "quack" about as bad as some others, and think that I have a new idea, and so for this time I will offer it and not charge a cent. In order to hit upon a new idea, I have always found that we have to look where no other person has already been hunting the ground over. That is the reason why that, when the new idea is first presented, it usually gets so ridiculed, and all the folks think that somebody is going crazy. But as it will not do to ask you to read an *acre* of introduction, I will proceed to offer the new idea, and see how many "knewed it all the time."

Much discussion has been had on wintering, and there are very diversified opinions as to the best way. I conclude (naturally) that *my* way is the best, but as yet I have not seen it advocated. Prepare a room, large enough for your bees: make it very light, also very warm; have it so you can keep it warm with a stove or heater or furnace, as your convenience will best permit. My room is 30x24 feet, and is just above my store, where it keeps quite warm during day and night. When your room is ready you will want my *new idea*—to place at the front entrance of each hive (which will cost about 20 cents to the hive), which allows each colony a space to fly in, of about 10 square feet. In this you can feed them, give them water, and sit near and enjoy them in their flight as long as you please. I tell you, it is delightful. The way to tell whether they are doing well is to notice whether they are dying off faster than those in the cellar. I have 74 colonies in all, some in the cellar; in fact, almost all; but from what I now see, I wish I had almost all in my bee summer-room. I have a cellar 30x40 feet, expressly for my bees, as dry as a powder-house, and probably not surpassed by any in the State; but my summer-room, with the *new idea*, from the present outlook, is decidedly the best, and I feel quite certain that I will adopt it in the future, whether anybody else does or not.

You will very naturally ask whether it is necessary to keep a fire all night. By no means; for if it freezes in the room every night, as long as you have a fire every day it will not hurt the bees at all; neither will it hurt them if it freezes in the cellar, if the cellar is dry; but if it is damp, and it freezes much, you are going to lose your bees. When your bees begin to look shiny with moisture, then look out.

Nirvana, Mich., Dec. 23.

F. D. LACY.

[It is just as you say, friend L. The thing you describe is very old. While some colonies have doubtless been saved by giving them a fly in the manner you describe, I believe that all who have used it finally discarded it as being more bother than the bees were worth; and as a rule, the bees that are given a fly in this way for any considerable length of time dwindle down worse than those that are left in the cellar, or outdoors without being meddled with at all. I congratulate you on your pleasant, genial way of presenting the matter; and this, in fact, was the principal reason why your communication on a discarded idea found a place in our columns.]

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

QUESTION 175. 1. *At the close of the white-honey harvest, is it better to take off all sections and secure any later surplus by extracting, or would you use sections throughout?* 2. *What surplus do you have after clover and basswood, and what proportion does it bear to the white honey?*

We have no fall or dark honey here of late years.

New York. C.

G. M. DOOLITTLE.

2. Our best crop is clover. We can not give any figures on the relative proportion of both crops.

Illinois. N. W.

DADANT & SON.

1. I would take the sections all off at the end of the white-honey crop. 2. We have no surplus after the basswood.

Wisconsin. S. W.

E. FRANCE.

1. I should act as my market suggested was wisest. 2. Goldenrod, asters, etc. Often we get as much or more than we got earlier.

Michigan. C.

A. J. COOK.

This is a good question to ask, but a hard one to answer. With us it would probably be as well to take them off, as only a small proportion of our surplus is dark.

New York. C.

P. H. ELWOOD.

I would use sections to the end of the season. In this locality, when we have plenty of rain, white clover from the seed blooms almost to the close of the season.

Illinois. N. W. C.

MRS. L. HARRISON.

I have had very little experience with late surplus honey; but with the experience I have had, I should be in favor of extracting it and feeding it back in the spring.

Ohio. N. W.

H. R. BOARDMAN.

1. I think it best to use sections through the season. 2. Helianthus, or wild sunflower, goldenrod, fireweed, and occasionally buckwheat. Usually more than half of my surplus is from these sources.

Ohio. N. W.

E. E. HASTY.

1. My practice is to remove all sections at the close of the white-honey flow; though in some localities, where dark honey is plentiful, I presume it is advisable to secure some of it in sections. 2. None worthy of mention.

Vermont. N. W.

A. E. MANUM.

1. Having every thing ready for it, I prefer to keep on with the sections, and then the brood-nest is always in good shape. An extracting-super might be better. 2. Not very much of any thing, except some years cucumbers and occasionally buckwheat.

Illinois. N.

C. C. MILLER.

1. I can sell dark extracted honey to better advantage than dark comb. 2. Sweet clover, bonesets (several varieties), asters, goldenrod—sometimes more than ten to one over white honey, always more. I have had as many as 70 lbs. of sweet-clover honey per colony, and as white as white clover.

Ohio. N. W.

A. B. MASON.

All comb honey produced for mercantile purposes should be white, and all dark honey should be extracted. The latter can always be sold, but not so with dark comb honey, which often can not be disposed of at any price, and is of no other value than strained honey. In the southern part of Ohio there is hardly ever more fall honey raised than is necessary for winter stores.

Ohio. S. W.

C. F. MUTH.

1. I would not advise raising comb and extracted honey from the same colonies—not in a locality like my own. It is a question of economy of labor. 2. After clover and basswood we have pleurisy-root, buckwheat, goldenrod, and boneset, any and all of which may and usually do give us a surplus crop, and usually we expect to get from one-half to two-thirds the amount of honey from these plants that we do from clover and buckwheat.

Michigan. S. W.

JAMES HEDDON.

Here there is usually a fall yield from heart-ease, lasting until frost kills the plants, or cold weather keeps the bees in the hives. This is sometimes more abundant than the early honey harvest. The best yield I ever knew came in the fall. I prefer to "taper off" by giving extracting combs to as many colonies as possible, so as to reduce the number of unfinished sections to the minimum.

Illinois. N. C.

J. A. GREEN.

1. This is a question for the comb-honey man to answer; but it occurs to me, that, if rigged up for comb honey, I should prefer to run the entire season in that line rather than be at the expense and bother of providing myself with the two outfits. 2. Fall flowers, and occasionally mint and buckwheat; probably the proportion would be one-fourth as much as compared with white honey.

Wisconsin. S. W.

S. I. FREEBORN.

I always take off sections of white honey before the advent of dark honey, for a very thin border of dark honey in a section spoils the whole for sale as a No. 1 grade. If my fall yield was usually large I would run for comb honey until the close of the season. In my locality I have a trace of buckwheat, but in a favorable season I have a bountiful yield of "bug-juice" for a series of years. Probably fall honey is five per cent of the whole yield.

New York. E.

RAMBLER.

[As I expected, most of the friends say, "Let the bees finish up what surplus they are going to give, in the sections." Friend Heddon suggests, however, that it is a question of economy in labor; and Rambler breaks over our rules, and speaks of "bug-juice," when it was agreed, as I had supposed, that no one was ever to use the disagreeable words any more. But when the brethren were talking about taking their chances of having their white honey spoiled by a streak of dark all around the outside, I began to wonder whether a good many of them had not forgotten the dark, disagreeable *honey-dew* that pestered us so, only five or six years ago. For my part, whenever I find this dark, cheap, molasses-looking stuff dotting the combs all through the hives, I would pull off the sections of white honey as fast as possible, even if some of them were not more than half filled. Friend Muth hits it exactly when he says that dark comb honey oftentimes can not be disposed of at any price. We have got a good lot on our hands now; and if there is anybody who wants to make us an offer he can have it very cheap.]

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

A PLEA FOR OUR SEEDSMEN, AND OUR CATALOGUES AS THEY ARE: BY ONE WHO HAS HAD YEARS OF EXPERIENCE IN MARKET-GARDEN SEED-STORES.

Friend Root:—Having been a reader of GLEANINGS for several years, I, of course, take some interest in its make-up, and particularly so in regard to cutting down the varieties in seed catalogues; but at the same time I can not indorse all you and Mr. Green say on that subject. While I agree with you, that we have too many kinds, yet the seedsman has points to look after that Mr. Green loses sight of entirely. From his standpoint he would have nothing in a seed catalogue except the kinds he had tested and found to be the best—losing sight of the fact that a seed establishment is not a local concern. It is national. Catalogues are going from Maine to California, and all the isles of the sea. Now, while the kinds he would catalogue may be the best for his particular locality, how is it with his neighbor in California? The climate there is very different: the varieties that do best here may be and often are entirely worthless there, while the very kinds Mr. Green condemns will be just what he must have to make a success. The seedsman is constantly getting reports from his customers from different parts of the country, and knows this to be a fact: and as long as he has the financial end of this problem to handle, it is safe to say that he knows what he is doing. Now, if the seed establishment is to be a *national* concern, the seedsman must carry varieties adapted to all parts of the country: but if he is just going to keep a country store, the case is very different. Which is it to be—shall we adopt Mr. Green's policy, and thereby reduce all the big seed establishments down to the same footing with the country store, or shall we consider that seedsmen know their business, and conclude to let them run it as their experience has taught them is best? I believe there is not a seedsman in the world who would not gladly cut very materially, if he could do so, and satisfy his customers.

Suppose we come right down to the local aspect of the case—the local market. If Mr. G. had followed gardening and attending market for a living for, say, ten years, as I have done, he would begin to talk like this, perhaps: "Yes, in *theory* it's all right; but as a *bread-winner* it is not a success." The man who attempts to make a living on marketing very soon discovers that there are different tastes to consult besides his own: and a customer who wants a head lettuce, for instance, will have a head lettuce, if it's on the market, while probably the very next customer would not have that kind if you *gave* it to him. You may rest assured, the market-gardener knows better than to cut down his list to the extent Mr. Green recommends; and if his seedsman doesn't keep the seeds he has found to be the most profitable, he will send to some other part of the country and get them. It is not theory the market-gardener is after; it's hard, solid facts in the shape of dollars and cents; and he knows what brings them in, better than any outsider can tell him.

One more point and I will close; but in that one point I beg leave to differ with Mr. Green, from the word go. He says, in GLEANINGS of Oct. 15, "The new kinds and sorts are mostly made by the seedsman in order to have a novelty to introduce." Shades of Moses! Did he ever stop to consider how long it takes a seeds-

man to get up a reputation, and that the reputation represents just that much capital? The better it is, the more it is worth. It certainly takes more than *two years*. Now, I ask you in all candor. Do you think that, after a seedsman has gotten up a pretty good reputation, he is going to be either knave or fool enough to throw it away for the few paltry dollars he would get out of it as a novelty? Oh, no! it's worth *too much money* for that, even if he were inclined to be dishonest, and I believe very few are. I think if Mr. Green had, say, two years' experience now in some good reputable seed-house it would modify his views considerably as to the honesty of seedsmen, and also as to the cutting-down process. Study this question over on both sides, friend Root, before you make up your catalogue; and I think that, if you expect to run any thing more than a local store you will not cut down so severely.

Yours respectfully, ———.

My good friend, I am very glad indeed to get the above communication, especially because it enjoins the very virtue (charity) that I have been exhorting to. I am glad to have somebody speak well of the seedsman, who is in no way interested, and yet one who knows all about the inside machinery of the establishment of a seedsman who issues a nice catalogue. But, my good friend, your experience has been mostly with one of the best and most honorable seedhouses in the United States. Our Experiment Station, represented by our good friend Green, knows very well that all you say is true of the seeds where you work. If you take all the seed catalogues that are put out, as friend Green and I have done, you will see a good deal that sadly needs the very work that friend Green and myself are trying to do. The same thing is over and over again catalogued under different names; and no attempt is made, seemingly, to reduce the number. Many times there is only a *shade* of difference in varieties, and yet year after year the two are catalogued. Again, there is the greatest misrepresentation. Let me give you an illustration. It will come in very well, for I have been thinking to-day it devolved on the bee-papers to show up *again* this fraud in regard to the Rocky Mountain bee-plant: viz., calling it by a new and flashy name: representing it as heretofore unknown, and telling most *preposterous* falsehoods in regard to the amount of honey it yields. We exposed it a year or two ago, and I wrote to the proprietor of the seed catalogue. It is true, I got a reply from him, but he neither seemed to want to be set right nor did he make any promise of correcting his false statements when they were plainly pointed out to him.

A TRIBUTE TO "WHAT TO DO AND HOW TO BE HAPPY WHILE DOING IT."

I send you \$1.00 for your excellent GLEANINGS. It is as good as the Bible in many respects. I can just cry with joy over a great part of your talk, of the garden as well as the Home talk. From experience I know just how dear Mother Earth fills you with joy and wonder. Oh how wonderful those berries are! I had a crop last year that surprised the people about here, and also with my early and late work in the garden. God smiles over me with love when in the field. I always feel like shouting when I see the way *you* get at it, which is the true way to be happy. May you live long to encourage all.

Hallowell, Me., Dec. 25. E. P. CHURCHILL.

Why, bless your heart, dear brother, I did not know before that the world contained *another* man who loves God and nature so exactly as I do. And then your wonderfully graphic way of

telling it—"God smiles over me in love!" There is inspiration in the very thought. If I ever get away down in Maine, won't we have a visit?

A KIND REPORT FOR GLEANINGS, AND A GOOD REPORT FROM WASHINGTON.

I can't do without GLEANINGS. Why, do you know the Dec. 1st issue was worth to me more than ten years' subscription? I have had celery on the brain for the last year. We have sold over \$1000 worth so far this season, and find ourselves with 12,000 plants on hand, and no place to store it, when here comes GLEANINGS and tells us to take the pigpen. Good for you! We have just got the pigpen, 30x25 feet; but who but A. I. Root would have thought to make use of it? The boys are at it now. The floor came handy to line the sides with, leaving a 6-inch space all around, which we fill with earth from ground underneath; and now with three or four loads of manure on top of the roof, we are fixed with a celery-house that will hold at least 6000. Celery here in our moist cool climate grows wonderfully large and fine. We have thousands that will weigh 4 or 5 lbs. to the single stalk—Golden Self-bleaching, 2½ feet tall, with leaves that are two inches at the base, and as brittle as an icicle.

Fidalgo, Wash., Dec. 12. H. A. MARCH.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

OBJECTIONS TO THE 60-LB. SQUARE CANS, FROM A HONEY-DEALER.

I notice considerable discussion in GLEANINGS about the 60-lb. tin cans for extracted honey. My observations are, that they are not the best, for they are very tender, and easily made to leak, especially if out of the cases, and nails are so apt to be driven into the tin through the cases. They are too frail, and not solid enough for the weight put in them. When they are leaky it is difficult to tell where the leak is, and you can not stop it without the tinsmith. The pine fish-kegs holding 75 and 150 lbs. each are the cheapest and most sensible packages for extracted honey; for, if leaky, the hoops can be driven and quickly coopered. Another objectionable feature of the tins is, that buyers get the impression that all honey in those cans is California honey, and are more or less prejudiced. What say other honey-dealers?

Albany, N. Y., Dec. 25. H. R. WRIGHT.

[We should be glad to hear from the other dealers.]

THICK AND THIN TOP-BARS.—ONE WHO HAS USED AND DISCARDED CLOSED-END FRAMES.

The new catalogue is at hand. It is a very neat one, and quite an improvement over former editions. I have used top-bars varying from ¼ inch to 1 inch in depth, and from ¾ inch to 1½ inches wide; but I have always had more or less burr-combs after the second season. I have some of Root's S. frames that have been in use two seasons, and have never had burr-combs built above them, though I have had sections filled over them each season; but, judging from experience, I am sure that burr-combs will come, in time. Exact spacing, by using fixed distances, can be maintained only by having every comb perfectly straight, and the septum exactly in the center of the frame; in fact, each

comb must be perfect and an exact counterpart of all the others; if not, you will very likely change the spacing every time you change a frame. Fixed distances have advantages for those who move their bees often. They also have disadvantages; and the point for each one to decide is, whether the advantages will outweigh the disadvantages. I used two thousand closed-end frames two seasons, and have decided in favor of hanging-frames.

ROBERT E. ASHCRAFT.

Brookside, Mich., Dec. 8.

[That's right; let's have both sides of the question. You do not tell us what sort of bee-space you had when you made your experiments with top-bars. In Elwood's apiaries I saw no burr-combs, or almost none, and he used a ¼-inch bee-space, scant if any thing. The same condition of things I saw in other apiaries where the ¼-inch bee-space and fixed distances were in use. There are several things that go to prevent brace-combs; and not the least important is the *right bee-space* above the frames. I am glad you have spoken out in regard to closed-end frames. There are and will be others like you; and, on the other hand, there are just as many who would use nothing else. It's a good deal in knowing how to handle them. We can't (no, we won't) all use the same kind of frames or hives.]

E. R.

WHAT THE EDITOR OF THE TELLER SAYS OF OUR REPRODUCTION OF THE FRANCE BEE-KEEPERS' ASSOCIATION.

Mr. Root:—I notice with pleasure your reproduction of the assembly of bee-keepers recently at Platteville. You could hardly have been prompted to the undertaking by that spirit which usually goes under the head of "enterprise," for there surely is no money in it. The Root of your motive must be in your "good will toward men"—a virtue that blossoms profusely in GLEANINGS. The faces of the group are nearly all familiar to me. They are of worthy citizens who are mostly friends and patrons of *The Teller*.

EDWARD POLLOCK.

Lancaster, Wis., Dec. 20.

A LITTLE MORE ABOUT THAT "SNUFF-BOX," ETC.

Friend Root:—I think your "snuff-box" illustration on page 757, in connection with those delicious gems, was very unfortunate, as one does not like to be reminded of the filthy thing every morning at the breakfast-table. Why did you not think of the humble clam, or the more æsthetic oyster whose bivalved shell opens like your "hinged gems"? In the South your illustration would not be appropriate, as the snuff-box in common use among the "ladies" at home, in company, and at church, is the ordinary small tin can in which it is packed for sale. The cover is removed, and the can passed around for each who desires, old and young, to "dip" in their little "tooth-brush" (a small stick chewed at one end), with which the snuff is "rubbed" upon the teeth. It is certainly an evil habit, injurious to both body and mind, if not degrading to the soul. I often think, in connection with the tobacco habit, to which I was at one time addicted, of that terrible sentence, "He that is filthy, let him be filthy still."

Some one, long since, asked in GLEANINGS, whether a person could be a "consistent professor of religion and be a user of tobacco." I should say yes; for a "professor of religion" covers a broad ground, and not well defined. But if the question were asked, "Can a person be a *Christian* and a habitual user of tobacco?" I should say no. A *Christian* will strive to overcome all evil habits.

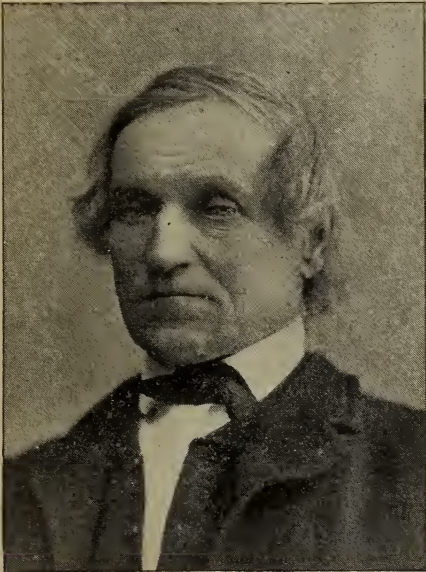
C. F. PARKER.

Mentone, Ala., Dec. 21.

OUR HOMES.

I therefore, the prisoner of the Lord, beseech you that ye walk worthy of the vocation wherewith ye are called, with all lowliness and meekness, with longsuffering, forbearing one another in love; endeavoring to keep the unity of the Spirit in the bonds of peace.—Eph. 4:1-3.

This is a wonderfully interesting world to me. I love the plants and the flowers; I love the moon and the stars, especially when the plants and the flowers are held in their icy bondage. During these shortest days, there is a wonderful interest to me in marking the course of the shadow, especially as it approaches noontime, and comes to its highest point northward. As the sun slowly comes to its furthest passage in its journey south, and rests awhile, apparently, just before Christmas, then gradually starts northward to bring us a new spring and a new summer, and a new year, it becomes to me a



HENRY WYAND, KEOKUK, IA.

matter of intense interest. I love, also, to see the sun rise and set—to see how it hitches a little further every day northward, and thereby gives us days a minute or two longer. But amid all the studies of the things I see, nothing interests me more than the study of humanity. I especially love to meet with people having peculiar attainments, graces, or individualities. In my recent visit to Keokuk I met many friends I had never seen before. One of them interested me so much that I have asked for his picture. He has granted me permission, but it was only when I explained to him why I wanted it, and I take pleasure in introducing to you my good friend Wyand, of whom I have previously spoken.

Those who have seen friend W., and talked with him, will agree that the picture is a very faithful one, but still it does not show the peculiar vein of pleasantry that he shows when talking; in fact, I feared we should never get that in any picture unless the artist should take him unawares by the instantaneous process. I

am not going to give friend Wyand's biography, because I have not got it to give. He is quite a modest man, and says that he does not think he would have granted my request had it not been "for the outside pressure in the family." It was friend Wyand, you may remember, who captured Ernest and myself and several others by promising to show us artesian wells, their attendant water-motors, dynamo, etc. I judge he is a man full of life and energy; and one thing that interested me in him was that he is, like myself, very much inclined to be impatient when things do not move off in harmony with his stirring nature and disposition. I should not wonder if his wife and children would smile a little when they read this. He is not only a rapid walker, but he is a rapid talker as well; and if you are not close by him, and listening attentively, you may not catch all he has to say, for he is full of ideas and projects, and especially full of quaint dry jokes that surprise one and get him to laughing until he gets in a mood of being pleased at any thing that may be said. As I was to leave on the 3-o'clock train of the last day, in order to make home before Sunday, I, with several others, made my visit to the Dadants the day before. Then when the convention adjourned to go in a body to the Dadants', during the last afternoon, it was arranged that I should go with friend Wyand to see the greenhouses, strawberry-patches, zoological gardens, etc. At the adjournment of the convention, the various vehicles drew up and rapidly loaded up the members. Friend W. was on hand promptly, according to appointment; but his horse and buggy, for some reason, had not "materialized." My good friend began to be greatly annoyed, because every minute shortened the time we should have for visiting the various places that he knew would interest me. He had planned a pretty good-sized program for only two or three hours, and it was very desirable that we get to moving. One of his daughters, so he told me, was to bring the horse and buggy. Ten, fifteen, twenty minutes passed—no daughter came in sight. He went up and down the sidewalk with manifest impatience, and would insist on going to the livery for a rig; but I urged him to be patient, and also assured him there was some excellent reason for the unexplainable delay. While we were waiting I made the acquaintance of another daughter of his who is head saleswoman in a fine drygoods store near by. It always pleases me to be able to take an expert business woman by the hand. The proprietors had tried repeatedly to get a man to take charge of their store. Miss Wyand, however, seems to sell more goods, and to please customers better, than any of the male clerks that can be found around Keokuk.

Finally the missing vehicle, with its nice-looking young lady driver, makes its appearance. Now, it was a very easy thing for me, under the circumstances, to see that my good friend ought not to scold in the presence of company. At the same time, I was well aware that, under the same circumstances, I should have been very likely to scold, even in the presence of company. May God forgive me, and may my good patient friends and relatives forgive me, for the many times I have forgotten, neglected, or refused, to follow the same course which I am trying to teach you, dear friends, as I talk to you this morning. I knew that friend W. felt a good deal like scolding, and I was afraid he would scold before he gave his good daughter time to explain. The reason I was afraid of it is because it would probably have been just like *myself* to do such a thing. As she drove up, looking bright, ruddy, and happy from her exercise in the cool autumn air, she presented a very pretty picture. Very like-

ly she has read GLEANINGS and these Home papers. She knew that the man by her father's side was A. I. Root; and if my good friend W. had made up his mind that he would scold her for being late, I was equally determined that he should *not* scold a word, if I could stop it. I am not naturally inclined to push myself forward among strangers. It is not at all easy for me, in one sense, and I am afraid it never will be; yet when I can push forward for Christ's sake, I hope I am ready and glad to do it. Yes, I can look back to many times when I have really enjoyed being seemingly rude, for the time being, when I did it for *Christ Jesus'* sake.

Friend Wyand started, in his rapid way, to the buggy as it rounded up to the curbstone. But I can walk fast too, and I pushed ahead of him, introduced myself to his daughter before he had time to say a word, and talked so fast, at the same time taking pains to stand between the two, that he could not even get a word in "edgewise." Perhaps he did not notice it at all. May be he thought it a little strange that I did not wait to be introduced in the orthodox way. But I hope that, when he sees this, he will forgive me. Yes, I am quite sure he is glad now that I did just as I did; and I am sure, too, that my good young friend will forgive me. I am inclined to think that friend Wyand's family, all of them, girls and boys, are in the habit of working outdoors and indoors. I had decided, in my own mind, that Miss Wyand was quite a pretty young woman; but as I finally gave her father a chance to speak he ventured just a little word of remonstrance, asking her why she did not get there sooner. My talk with his daughter had disarmed him, and he had doubtless got over most of the impatience he felt, and under the circumstances he did exceedingly well. I have not a word of fault to find with him, mind you, for he did a good deal better than I should have done, I fear. There *was*, however, a faint shade of fault-finding in his tone, and it brought a beautiful rosy spot on either cheek as his daughter replied:

"Why, father, I hurried the boys up all I possibly could, but I really could not *make* them bring the horse up any quicker, and I drove just as fast as ever the horse could go."

She glanced at me as she said this, feeling the same kind of pain, no doubt, that you or I would if you, my friend, were found fault with when you are first introduced, say, to the editor of one of your family papers. We soon learned that Mr. W. owned a horse that was in the habit of making the gravel fly, much after the disposition of its owner. We held our hats, and clung to the buggy-seat for fear of being bounced out; and when we stopped to look at interesting things the horse had a habit of starting without orders, as horses belonging to quick, nervous people, often do have. In fact, while in the zoological garden, one of our good bee-friends was knocked down and run over—only by the light buggy-wheel, however, just on account of this peculiarity. Let me digress enough to urge you not to permit horses to get into this habit of starting until bidden. It will pay you in dollars and cents to teach your horse not to move until you draw up on the reins, and tell him to go. Not only has money been lost, but also valuable lives as well, in this very way. You can teach the most spirited horse you own to stand until you tell him to go, if you will only take the pains, and you will save time by it in the end.

Friend Wyand's wonderful flow of pleasantry and good nature was somewhat checked by being late in starting. There, again, he is just like myself. A little thing of this kind will upset me for an hour or two unless I make a great effort to overcome it. At such times I need to

say over and over again my little prayer, "Lord, help!" He took us first down to the wonderful Government Canal, a structure that cost over two millions of dollars, made on purpose to permit boats to go by the rapids on the Mississippi River. It has the usual arrangement of locks, like ordinary canals, but on a much grander scale. Steam-engines are employed to work the locks, and the machinery is of the most beautiful kind. I was not only greatly astonished but much amused to see friend Wyand address the Government officers as if they were men in his employ. In fact, I rather expected to see some of them resent his familiarity; but one of his comical smiles, after he had given one of his peremptory commands, made it all straight, and they went through all the operations, and explained every thing to me in a way that made me feel still as if I were at home, and among my neighbors. The Government Dry-docks were a wonderful thing to me—a place where they brought in great steam-boats, and then let the water off so the carpenters could do necessary repairing. A little further on, we saw some beautiful rows of strawberries, and a man at work near them. Friend Wyand made this man stop his work on the other side of a field, and answer questions about the strawberries, at the top of his voice. Then we pulled around to friend W.'s home. He evidently had looked forward with pleasure to introducing your humble servant to the different members of his family; but he was somewhat vexed again to find not a soul at home. It was a beautiful day for outdoor work, and every one of them was busy somewhere. His whole premises on the top of the hill showed industry and hard work. He loves bees, fruit, and flowers as well as the rest of us. Pretty soon we stopped in front of a good-sized greenhouse. He made himself at home here too, and bossed the people around as if they were all working for him, just as he did before. I was greatly delighted to find a house heated entirely by overhead steam-pipes. The person in charge was a pleasant-faced woman, and I could have spent an hour in talking with her about plants, soil, new methods of heating, etc. She said they had recently taken out the pipes under the beds, and had placed them overhead, and were much pleased with the result.

Friend W. has taught me a useful lesson, and it is this: That one may go about among friends and neighbors, among business men and people, even among officers of the government, and may make them do every thing he asks, providing he has grace enough in his heart to keep up a vein of pleasantry and good nature to disarm all unpleasant feeling. This man captivates and makes friends by a sort of droll way. Perhaps he has cultivated it, and perhaps it is a gift of God largely—a gift that many of us might have, certainly, in a much larger degree if we would only strive hard for it—a faculty of seeing something pleasant, perhaps I might say in *every* thing, in all the duties of every-day life. It was on this account I was a little glad to see him tried by the delay of his horse and buggy. I did not want him to have trouble, but I wanted to see how far his native grace would bear him out in the hour of trial. I do not know whether he ever lets his temper come out, and scolds like fun, or not. I am sorry to say, that, with the amount of business we had on hand when I was there—that is, one kind of business, I did not find out whether he was a Christian or not. It may be I asked him the question—I hope I did; but if I did, I have forgotten what he said. It has occurred to me since, though, that this good friend of mine would have a wonderful power in bringing souls to Christ Jesus if this special gift of his

were enlisted in the cause, and if his quaint smile and vein of pleasantry could all be laid at the foot of the Master. When I see a man with this gift I often wonder how he will "stand fire." When Satan brings all his artillery to bear, how long will he stand unflinching, and without being demoralized? Dr. Miller has a wonderful gift in this line. I asked him a few days ago whether he could go into business, real hard work, and keep that steady good nature constantly about him. I wanted to know how big a reserve he held back for cases of emergency. Mrs. Root has a great mania for large cisterns. When the masons and others ask her what in the world she wants a cistern so big for, she says she not only wants one that will hold water enough for *our* use during a dry time, but one that will bear drawing on for the neighbors. She says she never wants to tell a neighbor that they can't have all the water they have a mind to come after. Now, friends, it is not the cistern water I need, but it is grace from on high. I want a great big lot of grace—not only enough to keep A. I. Root going, but enough to give the neighbors all around—enough to give the children at home. Yes, if my good wife should ever be worn out by many cares, so that she needs a little help in that line, I am earnestly praying that God may give me this reserve force of grace to help her. Nay, further: May God give me grace in such unstinted supply that I can pour it out to you, dear readers, and not be impoverished. And what is it we want finally but the gift of the Holy Spirit? And have we not the promise? And this brings us to that verse I have loved to read over and over again:

If ye, then, being evil, know how to give good gifts unto your children, how much more shall your heavenly Father give the Holy Spirit to them that ask him?

□ I wish to refer again to this matter of scolding before folks. Your children need exhorting; and they often need, perhaps, a severe reprimand; but do not do it on the impulse of the moment; do not do it from impulse at all. Do it from cool, steady principle, from a sense of duty. Only yesterday a man was slicing off wooden separators. One boy picked them from the machine, and laid them in piles of 25 each. Two more boys took these packages of 25 in long baskets to the dry-house, and piled them up with sticks between them, so they would dry out smooth and straight. The boys who were carrying them to the dry-house got a little ahead of the slicing. While they were waiting for a basketful they amused themselves by throwing splinters and spoiled separators on the large driving-belt. It was funny to see them whip around the pulley. The man who ran the machine was called away for a few minutes; and when he got back, some of these refuse pieces of wood were in the gearing, or large iron cog-wheels, throwing the belt off, and springing the main shaft. The boys said they were cleaning off the machine, and a handful of splinters fell into the gearing. They had been instructed, before going to work near the machine, in regard to the danger of being around such machinery, and had been cautioned to be very careful. They were certainly very much out of place in even throwing shavings on the belt—still more in cleaning off the chips and shavings while it was in motion. I reprimanded them pretty severely, but I did not feel quite satisfied that the whole truth had come out. The next morning, the smallest of the three boys came to me, saying that his conscience troubled him, and confessing that he not only put pieces on the belt, but he also put some in the heavy cog-wheels, to see it "chaw them up." This, you see, threw considerable additional light on

the matter. Had I yielded to impulse I should have made the boys pay all damage caused by getting the machine started again. It seemed pretty hard, however, to ask the one who so frankly confessed his fault to do this. I decided to let the whole matter rest until I could see each one of the boys alone. I am now very, very glad that I did so. I am glad that, when I had time to think the matter over, I could see very clearly that the loss of time and money was but a small matter compared with the falsehood that seemed connected with it. I have been anxious to bring these boys to Jesus Christ; and after I had waited half a day I could keep this thought in mind far better than if I had spoken about it when I was provoked. I do not know even yet just where the truth does lie—that is, it is not very clear whether the shavings ran from the belt into the gearing, whether they dropped from the machine into the gearing, or whether some one of the boys put in so large a handful as to stop the machinery with a sudden shock, and spring the shaft. Many of you will doubtless say, "Mr. Root, I would not have such boys anywhere on the premises." Gently, gently, dear friend, I have tried boys by the hundreds, and these boys will certainly average as well as any of them. It is boy nature to try experiments, and have fun, especially when he has to wait for something. If I should turn them off and try others, I should have to go through the same experience in teaching others; and these boys have been with me for some time, and are getting pretty well taught. I don't think they will play with dangerous machinery any more.

Some years ago, when I had a store on the street up town, I came home from prayer-meeting and found several customers in the store, and nobody there to wait on them. The two clerks whose business it was to take charge had each left, presuming the other was there. One of them was a professor of religion, and the other was becoming quite a young skeptic. He claimed that church-members and professing Christians do not do any better—perhaps not quite as well—as those who make no profession. I was anxious that he should have plenty of proof to the contrary. But I was so vexed to find the clerks so indifferent to the plain demands of business, especially in the middle of Saturday afternoon, that I scolded—well, more than I knew, till I came to think it over afterward. It was the young skeptic I found first. He took it very meekly, and did not offer a word of apology; and when I afterward begged his pardon he said he did not try to make any explanation then, because he thought it would be better to keep perfectly still until I had "cooled off." I presume there was wisdom in what he said. He, a non-professor, showed more wisdom than his employer, who had just returned from *prayer-meeting*, and who did a good deal of exhorting. Whenever I see him or think of him, a feeling comes up, "Oh that I could have those few minutes back again to do over!" He accepted my apology, and said it was all right, and that, under the circumstances, he thought very likely I was excusable. But my conscience did not tell me so. He is not a Christian yet, and something seems to say to me that my words during those five or ten minutes may possibly stand in the way of his ever becoming one. I do not know whether he has ever told his relatives about it or not. They are very kind, good friends of mine. Very likely he had manliness enough never to repeat to anybody what I did say to him. Perhaps you say I am too sensitive—that a clerk who deserted his post at such a time *ought* to be severely overhauled. Dear friend, nobody has ever censured me for that act. It is only the *still small*

voice that bids me let reason rule, and not impulse; that bids us all, in the language of our text, be "worthy of the vocation wherewith we are called, with all lowliness and meekness, with longsuffering, forbearing one another in love." The last caps the climax of it all. When you feel it is your duty to reprove, rebuke, or remonstrate, let me beg of you to do it in these words—"Forbearing one another in love."

Now may God's Holy Spirit help you, as it is helping me, to be slow, and to wait until you can use just the words, just the manner, and in just the place, that will count strongest for Christ Jesus.

CONVENTION NOTICES.

The annual meeting of the Ontario Bee-keepers' Association will be held in the city of St. Catharines Jan. 7 and 8, 1891. All interested are invited. W. COUSE, Sec., Streetsville, Ont.

The Vermont Bee-keepers' Association will hold their annual meeting in the parlors of the Addison House, Middlebury, Vt., Jan. 23, 1891. J. H. LARRABEE, Sec'y.
Larrabee's Point, Vt.

The 8th semi-annual meeting of the Susquehanna County Bee-keepers' Association will be held at Montrose, Pa., Thursday, May 7, 1891. H. M. SEELEY, Sec'y.
Harford, Pa.

The annual meeting of the Indiana State Bee-keepers' Association will be held in the Agricultural Rooms, State-house, Indianapolis, Jan. 16 and 17, 1891. G. C. THOMPSON, Sec'y.
Southport, Ind.

The annual meeting of the Ohio State Bee-keepers' Association will be held in Toledo, Ohio, on Tuesday and Wednesday, Feb. 10 and 11, 1891. Full particulars as to railroad and hotel rates, and place of meeting, will be given later. Let all interested in bee-keeping make an extra effort to be present.
Bedford, O. MISS DEBA BENNETT, Sec'y.

The Nebraska State Bee-keepers' Association will hold its annual convention in Nebraska Hall, State University, Lincoln, Jan. 13-15, 1891. Take a receipt from your home agent, and have it read, "To attend horticultural association," which meets at the same time, and this will entitle you to a return ticket at one-third fare. J. N. HEATER, Sec'y.
Columbus, Neb.

The 22d annual meeting of the New York State Bee-keepers' Association will be held in Agricultural Hall, Albany, N. Y., Jan. 22-24, 1891. Reduced railroad rates. Pay full fare to Albany, and we will give you a return certificate over any road coming into Albany (except the Boston & Albany) at one-third the regular fare. A cordial invitation is extended to all. Come, and bring your friends with you. A complete program will be published as soon as completed. G. H. KNICKERBOCKER, Sec'y.

The Eastern Iowa Beekeepers' Association will meet Feb. 11 and 12, 1891, in Maquoketa, Iowa, at the Dobson Town-clock Building, to commence punctually at 10 A.M. There will be a large turn-out of the prominent bee-keepers of the State. There will be a question-box, free to all, in which any question that you wish discussed can be presented and answered. Let all be on hand, and bring in your report for 1890 spring count, or from May 1. The people of Maquoketa kindly furnish us a free hall. FRANK COVERDALE, Sec.

PRICE LISTS RECEIVED.

J. G. Kunderling, Kilmanagh, Mich., sends us his 24-page list of apiarian supplies.

C. P. Bish, Grove City, Pa., has published his annual catalogue of bee-keeper's supplies.

We have printed for Jenkins & Parker, Wetumpka, Ala., a 60-page list of every thing pertaining to apiculture.

A COMPLIMENTARY NOTICE OF GLEANINGS.

THE editor of the *American Bee Journal* gives us the following very kind notice in his journal, page 820:

We congratulate Brother Root upon the fact that GLEANINGS has reached, and even passed, the ten thousand circulation, which it set out to do some months ago. GLEANINGS richly deserves this mark of public favor, for it is beautifully printed and carefully edited. If the reader desires to take another bee-periodical besides the *American Bee Journal*, we shall be pleased to send it and GLEANINGS for \$1.75 a year, or both these and the *Illustrated Home Journal* for \$2.15. This is a rare opportunity to secure three good periodicals for about the regular price of two.

As we have before stated, we make the same

club rates—that is, the *American Bee Journal* and GLEANINGS for \$1.75, or both and the *Illustrated Home Journal* for \$2.15.

EDITORIAL.

The discretion of a man deferreth his anger; and it is his glory to pass over a transgression—PROV. 19:11.

STRAY STRAWS is no longer an experiment. "It takes," and we're going to make it lead off.

THE NEBRASKA BEE-KEEPER.

THIS is the title of a new bee-journal, edited and published by Stilson & Sons, York, Neb. It is issued monthly, and contains 12 pages and a cover. Its general appearance and make-up are good. The price is 50 cents per annum.

THE MICHIGAN BEE-KEEPERS' ASSOCIATION.

By some inexcusable oversight on our part, we omitted to give notice of the State convention, to be held in Detroit, January 1 and 2. This notice will hardly be in time to be of any use; but its non-appearance can not be attributed to the secretary, Mr. Geo. E. Hilton. The senior editor will be present.

THE BEE-KEEPERS' REVIEW.

THE December issue of that sprightly monthly is now on our table. It is enlarged to 28 pages, with a tinted cover. The price is \$1.00 per annum. The frontispiece, or the design on the cover, is superb, and Mr. Hutchinson is to be congratulated upon the fine appearance of his paper as well as the general excellence of its subject-matter.

MORE ROOM.

WE find that the demands upon our space are excessive; and for the present, at least, we have decided to make all answers or "foot-notes," as they are called, and editorials, solid, like the correspondence. This will give us over one whole extra page every issue, or one whole extra issue during the year. For distinction, foot-notes will always be put inside of brackets.

LIFE-MEMBERSHIP IN THE N. A. B. K. A.

BRO. NEWMAN, of the *American Bee Journal*, says that it is ten years since he paid the fee of \$10.00 for life-membership in the N. A. B. K. A., and he says: "We already have our money back in annual fees for the \$10.00." The following is the present revised list.

D. A. Jones, Beeton, Ont.
Thomas G. Newman, Chicago, Ill.
A. I. Root, Medina, O.
E. R. Root, Medina, O.
J. T. Calvert, Medina, O.
Charles Dadant, Hamilton, Ill.
C. P. Dadant, Hamilton, Ill.
Eugene Secor, Forest City, Ia.
Dr. C. C. Miller, Marengo, Ill.
O. R. Coe, Windham, N. Y.

Remember that, after becoming a life-member, you are not necessarily obliged to attend the meetings; but you do thereby give the society a big leverage for the accomplishment of much good to bee-keepers.

CASH COMMISSION TO LOCAL AGENTS.

To any one who will take the trouble to canvass his neighborhood, and call the attention of bee-men, by *personal interview*, to the merits of our journal, we will allow a cash commission of 25 cts., providing that all names so obtained are taken for not less than \$1.00, and that he does not advertise for less than that price. No one can be agent unless he can send in at least one

name besides his own: in this case, \$1.50 pays for the two names. At least *one-half* of the names must be new.

THE COMBINATION HIVE.

A NEW bee-journal, under the caption of *The Queen Bee*, is just out. It is edited by E. L. Pratt, Beverly, Mass. In the editorial leader the Combination hive is described as simply the Dovetailed hive with an outside winter-protecting shell, or Alley winter case. Bro. Pratt speaks very highly of both, and the two he calls the Combination hive. He says: "We are all aware that the New Dovetailed hive is a well-made, cheap, and excellent hive, but is not adapted to wintering out of doors in cold climates. We have adapted the Alley case to this hive, and can guarantee them perfect winterers when arranged in this manner."

MEDALS OF AWARD.

There has been, for a couple of years back, a provision in the constitution, entitling affiliated societies in the North American Bee-keepers' Association certain privileges, among which was, that said societies shall be entitled to the services of a judge to award premiums at bee and honey shows, and that they shall also be entitled to receive two silver medals, to be offered as prizes, open for competition to all their members. So far, the national organization has conferred neither of these privileges. While on the sleeper, *en route* for Chicago, just as we left Keokuk, this matter was brought up by Mr. R. McKnight. One of the executive committee of the society was present, and a couple of the ex-presidents—Mr. T. G. Newman and Dr. C. C. Miller. We all admitted this matter had been overlooked so far, and that something ought to be done. After consultation, the executive-committee man present (E. R. Root) agreed to bring the matter before the other officers, and the same is now under consideration for more definite action for the future.

IS THE USE OF FOUNDATION PROFITABLE TO THE BEE-KEEPER?

On page 213 of the *Bee-keepers' Review* for Dec. 10, friend Hasty uses the following words:

"The foundation business is a big business; and it would be reduced very seriously if the truth were generally known."

There is more on the same subject, but the above will be sufficient. I fear that friend Hasty has been staying at home so long he is becoming a little "hasty." I trust, however, he is not getting *uncharitable* as well, toward his fellow bee-keepers. Had he been present at the Keokuk convention he would certainly have written differently. I expressed a fear at that convention that bee-keepers were purchasing and using more foundation than was really profitable, and I asked the president to call for a large number of rising votes on the matter. I expected that many present would give us facts to show that so much foundation is not needed. Now, I hope that friend Hasty will believe me, even if some who do not know me so well will not, when I say that I have felt really troubled to see orders come in, especially during the past season, for such enormous quantities of foundation, especially for the brood-chamber. I like to do business where I can furnish my fellow-men with something they *really* need and that will be to them a profitable investment; but when it becomes necessary to keep the *truth* from being generally known, in order to push sales, I do not want to do business any longer. If friend Hasty is better prepared to give us the truth in regard to the matter than

were the veterans at the above-mentioned convention, I will gladly give him space in *GLEANINGS*, and also pay him well for his time in writing it up. I can not believe that our journal would have reached its present circulation, nor our business its present magnitude, were it true that myself or any in my employ had tried to build up business by repressing the truth in regard to the things we have to sell. Ever since foundation began to be used by bee-keepers, there have been certain prominent writers who have been experimenting and writing to the effect that it does not pay to use it largely; and the matter has been under experiment and close scrutiny for at least ten or fifteen years. Our friend Doolittle has been prominent in this line. Now, if it is not profitable, especially for *novices* in the business, to invest so much money in this commodity, by all means let us have the truth out before another season opens.

A SIMPLE WAY OF GETTING AN ADJUSTABLE SPEED ON PRINTING-PRESSES OR OTHER MACHINERY.

THE ordinary way of doing the above is by countershaft and cone pulleys. One of our boys, however, three or four years ago, arranged a belt-shifter, so that he could, with his foot, throw the belt partly from the loose on to the tight pulley. By holding this belt-shifter where he placed it with his foot, he found he could get a very slow speed, and gradually increase it at any given point, clear up to the full normal speed of the press, simply by sliding the shifter a little further. We recently purchased an Armory press—a good deal larger than the one alluded to above: but he succeeds just as well in regulating the speed of this large press by the same cheap and simple device. In fact, his invention, if so it may be called, has saved us a set of cone pulleys that would have cost us \$27.00, and the cheap arrangement is much simpler and easier. One advantage is, that a green hand may run the press very slowly, while he is learning to feed, and then he can gradually give it a little more speed as his skill increases. I have wondered why this arrangement has not been used and mentioned before. If it has been, I have never heard of it. I invite the attention of our typographical periodicals to this labor and money saving device.

BURDENSOME NOMENCLATURE; GIVING CREDIT IN A NAME.

MR. HEDDON wishes to know why we do not give him credit by calling the Dovetailed the Dovetailed-Heddon hive. In the first place, it would make confusion with the *New Heddon* hive. More than that, to be fair to others we should have to call the hive the Langstroth-Blanton-Heddon-Danzenbaker-Hoffman-Hall Dovetailed hive. Life is too short to go through with all this. When the hive was brought out we gave credit to all four of the first named; and would any of our customers desire us to hitch on such a long-tailed appellation? We borrowed as much from Mr. Blanton and Mr. Danzenbaker as from Mr. Heddon, and more than all from Mr. Langstroth. Surely Langstroth's name should be attached if any. Every feature of the hive is old, and we do not claim for it any novelty in invention. The *dovetailing* has been in use for twelve years in hives, and the new hive itself is simply a combination of the old features that bee-keepers recognize and demand. In this connection I have always thought that the name of a well-known article, the Bingham & Hetherington uncapping-knife (a most excellent tool, by the way) was too long for convenience. Again, there used to be a hive sold which bore the

name "VanDeusen-Nellis Simplicity Hive." It is a great convenience to use *short* names; and as we can't very well give credit to *all* in a name, why give credit to *any*? A *short* name which shall indicate some predominant or striking feature has preference and utility.

E. R.

TAKING A PARTNER.

In our work of following and studying the habits of many thousands of individuals on our ledgers, as the years pass by we learn many lessons. For instance, we see a young man starting in business, and we rejoice to see him steadily, year after year, build up a name for being prompt and reliable. We have also chronicled others who have their ups and downs, and a few who seem to be always in trouble. There is another class who start right, and do well for a time, but they have evidently become weary in well doing, and finally go all to pieces; and this latter class is what prompts this editorial. A good many, when they begin to get uneasy, or perhaps feel cramped for the time being, take in a partner, when the amount of business does not need any partner at all, but just the contrary. In fact, we have had so many letters telling sad stories as a consequence of going into partnership, that I have felt prompted to give this warning. When you take somebody in as a partner, you *trade off* a part of your *good name*—at least, you place it in somebody's power to spoil the good name you have worked hard for, for years. And a great many times, like partnership in bees, or bees on shares, both parties feel so sure they have each been swindled by the other, that they stick to it for the rest of their lives. When you have a great business—more than one man can control—it *may* be best to go into partnership. But even then I think it is far better to *first* employ your contemplated partner at a salary. When you have proved by experience that you can work together in harmony, then, but not before, go into partnership. By the way, why not make your *wife* a partner—yes, and children too? Friend Terry most earnestly enjoins *this* sort of partnership in his talk at farmers' institutes. Now, remember Uncle Amos "told you so."

SHALL PERIODICALS BE CONTINUED AFTER THE TIME PAID FOR?

It seems to me, dear friends, that there has been a great deal of useless discussion in regard to this matter. Most things of this kind are settled on the rule of the greatest good to the greatest number. Now, we can not decide what other publishers ought to do; but as we have found that at least nine out of ten of our subscribers prefer to have GLEANINGS kept going, we think we secure the greatest good to the greatest number by so doing. The tenth friend can easily be accommodated in two ways. First, he can say, when subscribing, "Send it only so long as the money pays for it." If he does this, and the publisher disobeys orders, he does it at his own risk, for he can not collect pay for sending it longer. If, however, this tenth brother omits or forgets to say anything about stopping when he subscribes, and wishes to have it stopped, he can do so by writing on a postal card, "Please discontinue GLEANINGS." That will stop it. A good friend writes us that people are sometimes wronged in this way: Somebody makes you a present of a certain periodical. If the publisher keeps right on sending it, this friend is called upon to pay for something he never ordered at all. What shall you do in such a case? Well, I should say it is the publisher's loss if he continues to send his paper to anybody who never ordered it at all.

The principal reason why we have been induced to send GLEANINGS longer than the time paid for is this: A great part of our readers mean to have GLEANINGS kept going; but they neglect, and put it off, and then in the same way neglect and put off having it started after it has been stopped. Such people always thank us very kindly for having it kept going without orders—that is, they do when they get around to it, say when they are ordering bee-hives or something of that sort. The world is full of people who neglect and put off things they *meant* to have done. Now, this weakness of humanity is a large and prevailing element in all kinds of business. Please note: If we stop the paper for everybody at the time paid for, this weakness harms the publisher and harms the subscriber; but by keeping the paper going until we have orders to stop it, this same unfortunate element is then on the other side of the scale. It then operates to the advantage of both publisher and reader. The only trouble about it is, the man who does not want the paper any longer must *say so*. If he continues to take it out of the office, and does not say so, the law, and it seems to me good common sense, dictates that he must pay for it. I omitted to say, in the proper place, that he does not even need to take the trouble to write a postal card. Let him just leave his journal in the office, and inform the postmaster that he does not wish to take it any more. The postmaster is then required by law to inform the publisher that so and so does not want the periodical any longer. So in reality *no one* is obliged to pay for a periodical unless he takes it out of the postoffice regularly; and exactly the same way you would be required to pay for any kind of goods you take regularly of the common carrier. If you or any of your family take a pint of milk of the milkman every day when he comes past your house, you are bound to pay him for it; and I believe it does not matter whether you ordered it or not. If you receive it out of his hands, you are responsible for its value. I have several times thought of mailing a postal card to each of our 10,000 subscribers, this postal card to be plainly addressed to us. On the opposite side we would have printed in large letters, "Do you want GLEANINGS continued?" All that our negligent friends will have to do in that case will be to write "yes" or "no" opposite the question; then we could go ahead with a fair understanding all around, and we should have all orders in black and white. The difficulties are that it would cost over \$100 for the postal cards. Then it would cost over another hundred to place them in the hands of our readers, besides the large amount of laborious work on the part of our clerks and book-keepers, and very likely nearly half of our postals would never get dropped into the postoffice at all. But we do this, which is the next best thing to it: In every expired journal is put a circular letter, together with an order-blank and an envelope addressed to ourselves. The circular letter gives notice of expiration of subscription, and says, if you want the journal continued, fill out the blank and inclose it with one dollar in the addressed envelope. If you desire to have the journal stopped, write on the blank, "Please discontinue." If no notice is taken, the journal is continued, and in three months' time another notice is sent. If that doesn't "fetch 'em," another, in the course of time, is sent; and if still no response, we stop the journal, and send another notice to that effect, with a request to remit for the time not paid for. If our dropped subscriber still won't pay any attention, we don't trouble him further, as we do not care to waste more time. If we can afford to drop it there, he surely can.